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ATTORNEY DOCKET NO. 63044.2
(FORMERLY 033393.0003)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application Of:	)	
	)	
Ajit RAJASEKHARAN	)	Group Art Unit: 2876
	)	
Application Number: 09/987,599	)	Examiner Kumiko C. KOYAMA
	)	
Filed: November 15, 2001	)	Confirmation No. 7385
	)	
For: SYSTEM AND METHOD FOR AUTHORING AND PROVIDING INFORMATION RELEVANT TO A PHYSICAL WORLD	)	

REPLY TO NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

U.S. Patent and Trademark Office
2011 South Clark Place
Customer Window
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

Dear Sir:

The United States Patent & Trademark Office (PTO) has mistakenly acknowledged an improper revocation of Applicant's appointed representatives, *i.e.*, Rodger Tate and Trevor Coddington of Hunton & Williams LLP ("Tate *et al.*"), as indicated in the Notice Regarding Change of Power of Attorney issued on June 7, 2004. Sole Applicant and inventor in the instant application, Mr. Rajasekharan, maintains that the appointment of Tate *et al.* as his representatives has not been revoked. Accordingly, it is respectfully requested that the PTO: (1) update all appropriate records to reflect that Tate *et al.* are Mr. Rajasekharan's properly appointed representatives; (2) notify Mr. Rajasekharan and/or Tate *et al.* that the PTO correctly recognizes Tate *et al.* as representatives able to prosecute the instant application and not non-party Ms. Kovesdi or her representatives at Jones Day; and (3) in the event that any office action has been issued and incorrectly sent to Jones Day, mail Tate *et al.* a copy of such office action with the period for response appropriately restarted.

The inventorship of the instant application was set forth at the time of filing in a properly executed Declaration and Power of Attorney signed by the inventor of record, Mr. Rajasekharan,

pursuant to 35 U.S.C. § 115-116 and 37 C.F.R. § 1.63. Mr. Rajasekharan appointed, *inter alia*, Rodger Tate and Trevor Coddington of Hunton & Williams LLP (formerly with Brobeck, Phleger & Harrison LLP) as his representatives to conduct prosecution of the instant application before the PTO. This appointment has not been revoked in any way by Mr. Rajasekharan (nor Assignee Readia, Inc.).

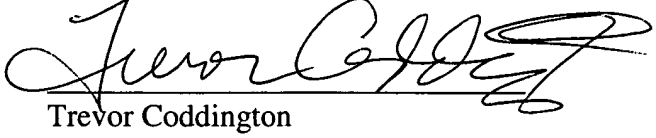
Apparently in response to non-party Ms. Kovesdi's attempt to submit a Revocation and Power of Attorney on May 24, 2004, in which she revokes "any and all previous powers," on the deceitful representation that she is an "Applicant of Record" when in fact she is not, the PTO by mistake revoked Mr. Rajasekharan's appointed representatives. *See* Notice Regarding Change of Power of Attorney issued on June 7, 2004. Ms. Kovesdi is not an inventor or applicant of record, and the PTO itself has previously ruled that Ms. Kovesdi is not a property in interest in the instant application. *See* PTO Letter of January 12, 2004. Thus, Ms. Kovesdi has no power whatsoever to revoke Mr. Rajasekharan's appointed representation.

No fee is believed to be necessary for the PTO's consideration of this Reply. In the event that the U.S. Patent and Trademark Office considers this Reply a Petition under 37 C.F.R. § 1.182, Mr. Rajasekharan submits that no petition fee is required because the reason for filing such a Reply/Petition is due to PTO mistake. Nonetheless, if a fee is otherwise deemed necessary by the PTO to consider this Reply or to maintain the instant application pending, please charge such fee to the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,

HUNTON & WILLIAMS LLP

Dated: June 15, 2004

By: 

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(202) 778-2201 (facsimile)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Ajit RAJASEKHARAN	)	Group Art Unit: 2876
	)	
Application Number: 09/987,597	)	Examiner K. KOYAMA
	)	
Filed: March 25, 2002	)	Confirmation No. 7385
	)	
For: SYSTEM AND METHOD FOR AUTHORING AND PROVIDING INFORMATION RELEVANT TO A PHYSICAL WORLD	)	

MR. RAJASEKHARAN'S REPLY TO MS. KOVESDI'S REQUEST FOR RECOGNITION AS A PROPER PARTY UNDER 37 C.F.R. §§ 1.181-1.183

U.S. Patent and Trademark Office
2011 South Clark Place
Customer Window
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

Dear Sir:

Applicant, Mr. Ajit Rajasekharan, of the above-captioned application respectfully requests the Commissioner to consider the following remarks in view of the Request for Recognition as a Proper Party under 37 C.F.R. §§ 1.181-1.183 submitted by non-party Ms. Kovesdi on May 24, 2004 (the "Kovesdi Petition"). Particularly, Ms. Kovesdi has requested that the United States Patent & Trademark Office (PTO) recognize her as a party to the instant application or in the alternative, to prevent any patent from issuing before the inventorship dispute between Ms. Kovesdi and Mr. Rajasekharan is resolved on the merits. Although Applicant ultimately seeks an equitable judgment to Ms. Kovesdi's disputed claim of joint inventorship, Applicant respectfully submits that the Kovesdi Petition is frivolous and the relief sought therein should be dismissed on any one of the following grounds:

(1) Ms. Kovesdi lacks standing to ask for the relief sought as she is not recognized as a proper party in interest to the instant application;

(2) Ms. Kovesdi's premise for recognizing her as a proper party in interest is frivolous;

(3) Ms. Kovesdi has failed to show good cause for the PTO granting her extraordinary and inappropriate request; and

(4) the disputed claim of joint inventorship is not ripe for the PTO's consideration.

I. RELEVANT HISTORY

The relevant procedural history of this application and the applications related thereto, and the circumstances surrounding the dispute with Ms. Kovesdi are summarized as follows.

At the outset, it is worthy to note that the instant application claims priority to U.S. Patent Provisional Application No. 60/306,356 ("the '356 Provisional"), filed on July 18, 2001.

A. The Joint '356 Provisional

The inventive entity designated in the '356 Provisional filed on July 18, 2001, consists of Mr. Rajasekharan and Ms. Kovesdi.

The '356 Provisional recites seventy claims.[1] An objective review of the facts as evidenced by his recollections and records led Mr. Rajasekharan to the position that only two dependent claims, *i.e.*, claims numbered 44 and 45, found in the '356 Provisional were jointly conceived with Ms. Kovesdi; all sixty-eight other claims being solely conceived by Mr. Rajasekharan. This position has been consistently maintained by Mr. Rajasekharan throughout the course of his interaction with Ms. Kovesdi and the PTO.

Around the time of filing of the '356 Provisional, the business relationship between Ms. Kovesdi and Mr. Rajasekharan failed and all direct communications among them ceased.

B. The Instant '597 Application

Mr. Rajasekharan filed the instant application on November 15, 2001, within four months of the filing date of the '356 Provisional. Although the instant application is based upon and claims priority to the '356 Provisional, it does not include the subject matter of claims 44 and 45 originally found in the '356 Provisional nor any other claimed subject matter to be jointly conceived with Ms. Kovesdi. Therefore, the instant application designates Mr. Rajasekharan as a sole inventor of the claimed subject matter rather than a joint inventor with Ms. Kovesdi as designated in the '356 Provisional. The instant application also omits certain disclosure found in the '356 Provisional as well as adds new disclosure and claims not found in the '356 Provisional.

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[1] Although the last claim is numbered claim 71, only seventy claims are provided since claim 22 is omitted.

A marked-up version of the instant application showing all modifications vis-à-vis the '356 Provisional is attached as Appendix A.

An Office Action issued on March 27, 2003, which rejected all pending claims, *i.e.*, claims 1-70, based upon prior art cited by the Examiner. Mr. Rajasekharan timely submitted a Response to the Office Action on June 11, 2003. Apparently as a result of Ms. Kovesdi's ill-advised attempt to intervene in the prosecution of the instant application (in which she is not a party) by way of a Petition submitted on April 21, 2003, which was not considered by the PTO as indicated in a Letter of January 12, 2004 (*see* Kovesdi Petition, Exhibit R), Mr. Rajasekharan to this day still awaits consideration of his June 11th Response submitted one year earlier.

Ms. Kovesdi again attempts join the *ex parte* prosecution of the instant application by way of her present Petition submitted on May 24, 2004. Such a request blatantly contravenes the PTO's prior holding in the Letter of January 12th, which expressly states that petitions by those other than a proper party in interest will not be treated on the merits. Moreover, Ms. Kovesdi is seemingly intent on disrupting the prosecution of the instant application by any means possible whether inappropriate or not, as evidenced by her Revocation and Power of Attorney concurrently submitted with her Petition. In an apparent attempt to improperly take control of the instant prosecution away from Mr. Rajasekharan, her Revocation revokes "any and all previous powers" on the deceitful representation that she is an "Applicant of Record" when in fact, she is not (Ms. Kovesdi is not a property in interest and has been ruled as such by the PTO as noted above). In response thereto, the PTO has mistakenly revoked the appointment of Mr. Rajasekharan's representatives, *i.e.*, Rodger Tate and Trevor Coddington of Hunton & Williams LLP, as noted in the Notice Regarding Change of Power of Attorney issued on June 7, 2004. Applicant, Mr. Rajasekharan, submits that he has not revoked the appointment of Rodger Tate and Trevor Coddington as his representatives and is supporting such by way of documentation concurrently submitted herewith.

Ms. Kovesdi also filed a Petition under 37 C.F.R. §§ 1.181-1.183 on April 22, 2004, in U.S. Patent No. 10/103,777 ("the '777 Application") (to which she is not a party) to request the same relief as that sought in the instant petition.[2]

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[2] The '777 Application, filed on March 25, 2002, which is a continuation-in-part of the instant application, names Mr. Rajasekharan along with Mr. Millman as a joint inventive entity. Ms. Kovesdi was not joined as a party, *i.e.*, Applicant, to the '777 Application.

C. Ms. Kovesdi's '952 Joint Application

After the filing of the instant application, Ms. Kovesdi filed U.S. Patent Application No. 10/035,952 ("the '952 Application") on December 26, 2001, which is based upon and identical to the '356 Provisional. The '952 Application names Mr. Rajasekharan and Ms. Kovesdi as a joint inventive entity.

It was not until April 22, 2002, that the '952 Application was brought to the attention of Mr. Rajasekharan. *See* Appendix B. At the request of Ms. Kovesdi's representative, Gary Jarosik[3], and to reply to the Notice of Missing Parts issued on April 4, 2002, forwarded at that time, Mr. Rajasekharan timely submitted directly to the PTO a Declaration on June 4, 2002, declaring himself as a joint inventor "of the subject matter to which at least one claim is directed" due to the recognition that the '952 Application includes claimed subject matter corresponding to the two jointly conceived dependent claims 44 and 45 found in the '356 Provisional.[4] Because of the adverse relationship that had developed between the parties and to protect Mr. Rajasekharan's interests in the '952 Application, a Petition under 37 C.F.R. § 1.182 was concurrently submitted therewith requesting that Mr. Rajasekharan formally join the prosecution in the '952 Application under the dual representation provisions of MPEP § 402.10, thereby permitting Mr. Rajasekharan to have his own independent representation vis-à-vis Mr. Kovesdi. *See* Kovesdi Petition, Exhibit G. Due to the unintentional mistake of omitting Ms. Kovesdi in the inventive entity designated, the PTO found Mr. Rajasekharan's Declaration defective and therefore, dismissed his Petition as moot. *See* Kovesdi Petition, Exhibit H. On August 23, 2002, Mr. Rajasekharan resubmitted his Declaration, but with Ms. Kovesdi properly identified as the other joint inventor, along with a substantively identical Petition under 37 C.F.R. § 1.182 as previously submitted In the meantime, Ms. Kovesdi submitted on May 1, 2002, a Petition under 37 C.F.R. § 1.47(a) asking to recognize Mr. Rajasekharan as a non-

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[3] For reasons unknown, Mr. Jarosik later removed himself as counsel for Ms. Kovesdi sometime in or around February of 2003. *See* Appendix C.

[4] Claims 44 and 45 of the '356 Provisional have been renumbered claims 43 and 44 by the Examiner in the '952 Application since claim 22 was mistakenly omitted.

signing inventor and to prosecute the application on behalf of both parties.[5] *See* Kovesdi Petition, Exhibit F.

Mr. Rajasekharan's Petition under 37 C.F.R. § 1.182 was granted and Ms. Kovesdi's Petition under 37 C.F.R. § 1.47(a) was deemed moot by way of the PTO's Decision of September 17, 2002, which expressly provided that: (1) Mr. Rajasekharan's Declaration of August 23, 2002, is compliant with 37 C.F.R. § 1.63 and the '952 Application does not have any rule 1.47(a) status, and (2) all further correspondence to the PTO must be signed by a representative of each party in accordance with MPEP § 402.10 to assure that all interests are properly and effectively represented. *See* Kovesdi Petition, Exhibit I.

On April 16, 2003, Mr. Rajasekharan's representatives received a copy of a first Office Action via Ms. Kovesdi's representatives, which was originally mailed by the PTO nearly one month before on March 18, 2003. *See* Appendix D. The Office Action rejected all claims in the '952 Application in view of prior art raised by the Examiner. *See* Kovesdi Petition, Exhibit J. Mr. Rajasekharan formulated and forwarded to Ms. Kovesdi's representatives a ready-to-file Response to the Office Action on May 21, 2003, which addressed the prior art rejections and canceled all claims that we maintained as solely conceived by Mr. Rajasekharan since those claims were being pursued in the instant application. *See* Kovesdi Petition, Exhibit L. By forwarding Mr. Rajasekharan's proposed Response approximately two months after the Office Action's date of mailing, nearly four full months remained in the statutory response period for Ms. Kovesdi to review such and provide her comments. However, Ms. Kovesdi did not return communication until September 15, 2003, only three days before the application would be held abandoned by the PTO. *See* Kovesdi Petition, Exhibit M. Completely disregarding the merits of Mr. Rajasekharan's Response and his position of sole inventorship of all but two of the dependent claims, Ms. Kovesdi's representatives requested that Mr. Rajasekharan sign off on their own prepared response pursuing all claims. *See id.* Because of the belated nature of this

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[5] Mr. Rajasekharan finds it incredulous that Ms. Kovesdi would declare on record in the '952 Application that "a diligent effort has been made to obtain the signed Declaration of Mr. Rajasekharan" when only nine days had lapsed between her making such an assertion and first notifying Mr. Rajasekharan of the filing of the '952 Application and requesting that he execute a joint declaration for such. In view of the April 4th Notice to File Missing Parts, this assertion was made with over one month remaining before a response was due without extension and over six months before any holding of abandonment could ultimately take place.

communication, the intermediate four months in which the parties could have addressed the merits of any inventorship dispute were squandered by Ms. Kovesdi.

Mr. Rajasekharan denied to take part in Ms. Kovesdi's proposed Response as indicated in the letter of September 16, 2003, which stated that "[w]e will not risk harming Mr. Rajasekharan's interest in the above-reference application by hurriedly executing and submitting your 'eleventh hour' response." *See* Appendix E. Such a denial was also based on the fact that Ms. Kovesdi had provided no evidence whatsoever, other than two statements from Mr. Rajasekharan in which he believes are taken out of context, to support a determination that she is a joint inventor of any claims in addition to the two dependent claims 43 and 44. On September 22, 2003, Ms. Kovesdi was encouraged to file Mr. Rajasekharan's response to avoid the application being held abandoned, after which the parties could meet "to jointly analyze inventorship claim by claim in view of each side's support for conception of the claimed invention." *See* Kovesdi Petition, Exhibit N. In spite of the PTO's strict ruling that correspondence to the PTO must be signed by a representative of each party, Ms. Kovesdi unilaterally submitted her own prepared Response on September 17, 2003, despite the lack of any signature on behalf of Mr. Rajasekharan, and then submitted it again on September 22, 2003, with Mr. Rajasekharan's letter from that day as alleged support for not having his signature.[6] Not surprisingly, the PTO declined to consider Ms. Kovesdi's two Responses due to the failure to obtain Mr. Rajasekharan's signature. *See* Appendix F. In an Office Action issued on December 16, 2003, the PTO gave the parties an additional month to submit a proper response signed by both parties. *See id.* If no response is submitted by June 16, 2004 (the end of the response period with extensions), the '952 Application will be held abandoned.

In a communication of April 1, 2004, well into the period requiring extension to respond, Ms. Kovesdi's representatives again insisted that Mr. Rajasekharan sign off on their Response from September 17, 2003, without even addressing the merits of the inventorship dispute. *See* Kovesdi Petition, Exhibit T. In a communication of April 8, 2004, Mr. Rajasekharan expressed his intent not to let the instant application go abandoned and among several options he proposed was the filing of a continuation application. *See* Kovesdi Petition, Exhibit U.

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[6] The deadline for responding was extended from the 18th to 22nd due to Hurricane Isabel forcing the PTO to close on the 18th and 19th. The 20th and 21st fell on the following weekend.

Rather than taking the straightforward and reasonable procedural step(s) necessary to have the PTO ultimately address the claims in the '952 Application in which Ms. Kovesdi disputes Mr. Rajasekharan's position of sole inventorship, she chose instead to file a Petition on April 19, 2004, requesting in essence that the PTO overturn their Decision of September 17, 2002, *i.e.*, the PTO grant 37 C.F.R. § 1.47(a) status to Mr. Rajasekharan (even though the PTO previously recognized Mr. Rajasekharan's Declaration as compliant with 37 C.F.R. § 1.63) and withdraw the requirement of dual representation under MPEP § 402.10 (even though the PTO held that such a requirement was deemed necessary). *See* Kovesdi Petition, Exhibit U. In the alternative, Ms. Kovesdi unilaterally requested that the PTO stay the prosecution of the '952 Application. *See id.* This extraordinary course of action by Ms. Kovesdi has also been chosen over Mr. Rajasekharan's numerous invitations to open a dialog between the parties to discuss each side's inventorship contentions. To this day, Ms. Kovesdi simply refuses to have any discussions with Mr. Rajasekharan choosing instead to waste both parties' time and money, as well as the PTO's resources.

On May 21, 2004, the PTO dismissed Ms. Kovesdi's April 19th Petition on the grounds that Ms. Kovesdi's arguments "are not persuasive that the relief [sought] can or should, be granted." *See* Appendix G. Particularly, the PTO articulated that "Rule 47 status is not applicable to the ['952] application," reiterating that expressed in the PTO's Decision of September 17, 2002, and "[t]o grant this petition would essentially render the grant of [Mr. Rajasekharan's] petition under 37 C.F.R. § 1.182 of no effect, as petitioner could by such means file Office correspondence upon behalf of the recalcitrant inventor, to the prejudice of that inventor's rights." *Id.* Moreover, the PTO suggested that Ms. Kovesdi consider filing a continuation or divisional application, the very same course of action that Mr. Rajasekharan proposed to Ms. Kovesdi nearly two weeks prior to the filing of her Petition. *See id.*

D. The Inventorship Dispute with Ms. Kovesdi

As noted above, Ms. Kovesdi apparently disputes Mr. Rajasekharan's position that he is a sole inventor of sixty eight of the seventy claims found in the '356 Provisional (and hence in Ms. Kovesdi's '952 Application).

In an attempt to resolve the inventorship dispute amicably or at least move the parties forward to conduct a substantive dialog on the merits of each side's inventorship contentions without PTO intervention, Mr. Rajasekharan at his own initiative provided Ms. Kovesdi with key

parts of his supporting documentation along with an explanation for his position of sole inventorship for the claims in his instant application on November 13, 2003. *See* Kovesdi Petition, Exhibit P. Unfortunately, Ms. Kovesdi snubbed this offer as well as every other offer by Mr. Rajasekharan to open a meaningful dialog. *See, e.g.*, Kovesdi Petition, Exhibit T. Although Mr. Rajasekharan's recognizes that a PTO substantive analysis of the evidence pertaining to inventorship is premature at this point as none of the claims in the instant application or the '952 Application have been allowed and no interference-in-fact exists, it is worthy of note that Ms. Kovesdi has conveniently not disclosed to the PTO her own admissions adding support to Mr. Rajasekharan's position. *See, e.g.*, Kovesdi Petition, Exhibit P submitting an Email from Ms. Kovesdi to Mr. Rajasekharan (March 14, 2001) ("Your idea is valued at 500 million dollars!!!").

II. MS. KOVESDI LACKS STANDING TO ASK FOR THE RELIEF SOUGHT AS SHE IS NOT A PROPER PARTY IN INTEREST TO THE INSTANT APPLICATION

Ms. Kovesdi has no standing whatsoever in the instant application to ask for the relief sought as she is not a proper party in interest because she was not included in the inventorship of record. As already noted by the PTO in this very application, petitions by those other than a proper party in interest will not be treated on the merits. There is no reason to now deviate from such a steadfast rule.

It is well established that prosecution of an application is conducted as an *ex parte* proceeding, *i.e.*, done for the benefit of applicants and/or assignee only ("the Proper Parties in Interest"), and without notice to, or argument by, any person adversely interested. *See, e.g.*, C.F.R. § 1.33(b) ("Amendments and other papers . . . must be signed by: (1) A registered attorney or agent of record appointed . . ., (2) A registered attorney or agent not of record who acts in a representative capacity . . ., (3) An assignee . . ., or (4) All of the applicants . . . .").

The inventorship of the instant application was set forth at the time of filing in a properly executed Declaration and Power of Attorney signed by the inventor of record, Mr. Rajasekharan, pursuant to 35 U.S.C. § 115-116 and 37 C.F.R. § 1.63. Mr. Rajasekharan appointed, *inter alia*, Rodger Tate and Trevor Coddington of Hunton & Williams (formerly with Brobeck, Phleger & Harrison) as his representatives to conduct prosecution of the instant application before the PTO.

Ms. Kovesdi is not a proper party in interest, *i.e.*, inventor or assignee, nor is empowered to represent the instant application. Accordingly, Ms. Kovesdi lacks standing and the PTO should not entertain her present petition by considering its merits.

III. MS. KOVESDI'S PREMISE FOR RECOGNIZING HER AS A PROPER PARTY IN INTEREST IS FRIVOLOUS

Ms. Kovesdi argues that she has a proprietary interest in the matter on the grounds that her supplied "evidence demonstrates that Ms. Kovesdi is a co-inventor of the subject matter claimed in the '597 application . . ." *See* Kovesdi Petition, page 8. This argument is premised on Ms. Kovesdi's interpretation of the law as articulated in her Petition as follows:

> Although under MPEP § 2137.01 executors of an oath or declaration under 37 C.F.R. § 1.63 are presumed to the inventors, it is respectfully submitted that this presumption is rebuttable where, as here, the inventorship is in dispute. Furthermore, with reference to 37 C.F.R. § 1.47(b) and MPEP 409.03(f), a proper party in interest status need not be limited to the named inventors or assignees, but also includes one "who otherwise shows sufficient proprietary interest in the matter."

Applicants respectfully submit that this premise and overall argument is unsoundly based and frivolous.

Ms. Kovesdi's argument is nonsensical and lacks any established legal foundation. No statute, PTO regulation, nor precedential decision is cited that would lead one to reasonably believe that the PTO's determination of the proper parties in interest is "rebuttable where, as here, the inventorship is in dispute" as Ms. Kovesdi argues. *Id.* Indeed, case law provides that the parties executing an oath or declaration under 37 C.F.R. § 1.63 are presumed to be the inventors. *Driscoll v. Cebalo*, 5 USPQ2d 1477, 1481 (Bd. Pat. Inter. 1982). However, Applicant can find no case law that suggests that this presumption is rebuttable, particularly in an application by someone who is not a party to that application. Applicants respectfully believe that no legal precedent exists that would enable the PTO to recognize Ms. Kovesdi as a proper party in the instant application after the inventive entity has already been designated by Applicants under 37 C.F.R. § 1.63. Moreover, Ms. Kovesdi's reliance on 37 C.F.R. § 1.47(b) and MPEP § 409.03(f) is misplaced. These sections apply to inventors refusing to sign or who can not be reached. This application clearly has no § 1.47 status as Mr. Rajasekharan has at the time of filing submitted an executed sole Declaration in accordance with 37 C.F.R. § 1.63. Any

attempt by Ms. Kovesdi to prove that she has a "sufficient proprietary interest in the matter" under 37 C.F.R. § 1.47(b) is simply irrelevant.

IV. MS. KOVESDI HAS FAILED TO SHOW GOOD CAUSE FOR THE PTO GRANTING HER EXTRAORDINARY AND INAPPROPRIATE REQUEST

The relief sought by Ms. Kovesdi is predicated on the assumption that the PTO's decisions in this application and the '952 Application "have practically precluded consideration of the inventorship issue on the merits and have given Mr. Rajasekharan control over both the '952 and the '597 applications." *See* Kovesdi Petition, page 2. This assumption that Ms. Kovesdi relies upon is unsoundly based and therefore, Ms. Kovesdi has failed to show good cause for the PTO granting her extraordinary and inappropriate request.

Ms. Kovesdi finds herself "practically precluded" only because she and her counsel fail to recognize and take the necessary and reasonable step(s) that would lead to the PTO possibly considering the inventorship dispute. Any contention that Mr. Rajasekharan or the PTO has encumbered her ability to ultimately have an interference declared is unfounded. The only position taken by Mr. Rajasekharan that seemingly stifles Ms. Kovesdi's prosecution tactics and objectives is his concurrence with her that she is a joint inventor of two, and only two, dependent claims in the '952 Application. Although Mr. Rajasekharan seeks an ultimate resolution to the inventorship dispute as well, he nor his counsel are believed to be under any obligation that would require them to specifically point out to Ms. Kovesdi and her counsel the straightforward prosecution steps that can and should be taken by her to bifurcate the claims not in dispute from those that could ultimately wind up in an interference proceeding. Even the PTO has suggested that Ms. Kovesdi should consider filing a continuation or divisional application off of the '952 Application in order to prosecute further without needing any cooperation of Mr. Rajasekharan. *See* Appendix G. This is the very same course of action that Mr. Rajasekharan proposed to Ms. Kovesdi nearly two weeks prior to the filing of her Petition in the '952 Application. Accordingly, there is no need for the PTO to step in to save Ms. Kovesdi when other reasonable options exist. Any loss of rights by or irreparable harm to Ms. Kovesdi will be at her own fault, not any fault of Mr. Rajasekharan or the PTO. Ms. Kovesdi's present request not only wastes her own time and resources, but that of Mr. Rajasekharan as well as the PTO.

Mr. Rajasekharan has every right to control the prosecution of the '597 Application and has no more control over the '952 Application than Ms. Kovesdi. Mr. Rajasekharan is designated as the sole inventor in the '597 Application and therefore can conduct *ex parte*

prosecution without notice to, or argument by, any person adversely interested, *i.e.*, Ms. Kovesdi. *See* Remarks II, *supra*. In the '952 Application, Mr. Rajasekharan simply refuses to be bullied by Ms. Kovesdi's all or nothing tactics, *i.e.*, her insistence on filing nothing, but her own prepared response, particularly in view of her unsupported dismissal of Mr. Rajasekharan's belief that sixty-eight of the seventy pending claims are solely conceived by him. Any suggestion that the current balance of power weighs in Mr. Rajasekharan's favor is erroneously based. Any veto power is equally shared among the Applicants in the '952 Application. For example, Ms. Kovesdi has wielded the very same veto power by refusing to submit or even consider Mr. Rajasekharan's prepared Response.

Ms. Kovesdi's further assertion that Mr. Rajasekharan has acted improperly because he "has not provided, either to the Patent Office or to Ms. Kovesdi, any evidence of his asserted sole conception of the claims in either the '597 application or with respect to all but two claims in the '952 application" is senseless. Mr. Rajasekharan has not provided the actual support for his claim of inventorship to the PTO because he and his undersigned counsel are well aware that the there is no duty to do so and more importantly, the PTO prefers not to get involved in disagreements among the inventors until allowable subject matter exists and an interference can be provoked. No allowable subject matter exists so far in either the '952 or '597 Applications and therefore an interference is premature at this point in time. If the PTO wishes to presently consider the merits of each side's contentions, Mr. Rajasekharan is more than happy to provide his evidentiary documentation supporting a position of sole inventorship. Contrary to Ms. Kovesdi's assertion, Mr. Rajasekharan has invited Ms. Kovesdi to participate in a meaningful dialog to address the merits of each side's inventorship contentions as a means to reach to a jointly submitted Response suitable to both parties without the PTO's involvement. For example, on November 13, 2003, Mr. Rajasekharan not only provided Ms. Kovesdi with the key parts of his supporting documentation, but also an explanation for his position of sole inventorship. *See* Kovesdi Petition, Exhibit P. Instead, Ms. Kovesdi has ignored all invitations to discuss inventorship preferring to improperly and/or prematurely to use prosecution before the PTO as an inventorship dispute resolution forum.

V. THE DISPUTED CLAIM OF JOINT INVENTORSHIP IS NOT RIPE FOR THE PTO'S CONSIDERATION

In essence, Ms. Kovesdi seeks to have the merits of each side's contentions for inventorship immediately judged by the PTO. Applicants respectfully submit that Ms. Kovesdi's disputed claim of joint inventorship is not ripe for the PTO's consideration as no interference-in-fact exists.

Although interferences typically involve date of invention contests, an interference can be declared to establish inventorship. *See Chou v. University of Chicago*, 254 F.3d 1347, 1358 n. 2, 59 USPQ2d 1257, 1262 n.2 (Fed. Cir. 2001) (a means for a putative inventor to assert inventorship rights is to file a patent application and seek to have the PTO declare an interference in order to establish inventorship); *Linkow v. Linkow and Edelman*, 517 F.2d 1165, 186 USPQ 223 (CCPA 1975). An interference between pending applications may be requested by an applicant who has become aware of another application which may be claiming the same invention. MPEP § 2300.02. Before an interference is declared between two or more applications, the examiner must be of the opinion that there is interfering subject matter claimed in the applications which is patentable to each applicant subject to a judgment in the interference. 37 C.F.R. § 1.603. The parties have a dispute only because the 'claims' in their respective cases, interfere with each other. *Louis v. Okada*, 57 USPQ2d 1430, 1431-34 (BPAI 2000). If no 'claim' of one party interferes with at least one 'claim' of another party then there can be no interference-in-fact. *Id. interpreting* 37 C.F.R. § 1.601(j).

Consideration of Ms. Kovesdi joint inventorship contentions is presently premature. Ms. Kovesdi does not have a patent application that would stand in the way of examining or issuing the instant application. No claim in the '952 Application or the instant application has been found allowable by the Examiner yet. Because Ms. Kovesdi has no claims that actually "interfere" with those in the instant application, there is no inventorship dispute ripe enough for the PTO to adjudicate at this point.

VI. CONCLUSION

The present Kovesdi Petition is another example of an extraordinary attempts to contravene and circumvent well established PTO rules. Ms. Kovesdi has a long history of filing frivolous Petitions as evidenced by the PTO's previous refusal to allow her to join in the prosecution of the instant application and the dismissal of her recent petition in the '952 Joint Application. The present Petition is nonsensical in view of the well established principles of *ex*

parte prosecution and her failure to implement the reasonable steps needed to seek an interference with the presently recited claims. In essence, because Ms. Kovesdi and her counsel do not comprehend how to proceed under the PTO's rules, they ask that the PTO change the rules to accommodate them at the other party's expense. Applicants urge the Commissioner to deny the relief sought by Ms. Kovesdi.

No fee is believed to be necessary for this submission. However, in the event that the PTO deems a fee is necessary for consideration of the remarks herein, please charge such fee to the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,

Dated: June 14, 2004

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System and method for authoring and providing information relevant to ~~a physical~~**the physical** world

Abstract

A system and method capable of reading machine-readable labels from physical objects, reading coordinate labels of geographical locations, reading timestamp
labels from an internal clock, accepting digital text string labels as input obtained directly from a keyboard type input device, or indirectly using a speech-to-text engine **transforming any other label type information encoding into digital data by some transduction means**, and treating these different labels uniformly as object identifiers for performing various indexing operations such as content authoring, playback, annotation and feedback. The system further allows for the aggregating of object identifiers and their associated content into a single addressable unit called a tour. The system can
function in an authoring and a playback mode. The authoring mode permits new audio/text/graphics/video messages to be recorded and bound to an object identifier. The playback mode triggers playback of the recorded messages when the object identifier accessed. In the authoring mode, the system supports content authoring that can be done coincident with object identifier creation thereby enabling authored content to be unambiguously bound to the object identifier. In the playback mode, the system can be programmed to accept/solicit
annotations/feedback from a user which may also be recorded and unambiguously bound to the object identifier.

Claims

~~What is claimed is:~~
I claim:

1. A method for authoring information relevant to a physical world, comprising:
detecting with an authoring device a first label associated with a first object;
and triggering, in response to detecting, a system for authoring content;
wherein the content is to be unambiguously bound to the first object and is to
be rendered on a playback device during detection of the first label.

2. The method as recited in claim 1, wherein the system for authoring content is
resident on the authoring device.

3. The method as recited in claim 1, wherein the authoring device and the playback device are integrated within a single apparatus.

4. The method as recited in claim 1, wherein the label is selected from a group
consisting of a barcode label, a coordinate, a RFID tag, an IR tag, a time stamp, a text string, and ~~a speech to text string.~~**any other label type whose information can be
transformed to digital data by some transduction means.**

5. The method as recited in claim 1, wherein the content is selected from a group consisting of audio, text, ~~image~~**graphics**, ~~and~~ video**, or a combination thereof**.

6. The method as recited in claim 1, wherein the content is a link to a live agent.

7. The method as recited in claim 1, further comprising the steps of detecting a second label associated with a second object; triggering, in response to detecting, the system for authoring content which is unambiguously bound to the second object; and aggregating the content bound to the first object and the second object into a **single logical entity called a** tour.

8. The method as recited in claim 1, further comprising the step of detecting a second label associated with the first object and normalizing the first label and the second label such that the content bound to the first object can rendered during detection of either the first or second label in the playback mode.

9. The method as recited in claim 1, further comprising the step of storing the content in non-volatile memory resident in the apparatus.

10. The method as recited in claim 1, further comprising the step of uploading the content to a remote server.

11. The method as recited in claim 10, wherein the step of uploading is performed via a wireless network.

12. The method as recited in claim 10, wherein the step of uploading is performed via a wired network.

13. A computer-readable media having instructions for authoring information relevant to a physical world, the instructions performing steps comprising: detecting a first label associated with a first object; and triggering, in response to detecting, a system for authoring content to be unambiguously bound to the first object; wherein the content is to be rendered during detection of the first label by a device in a playback mode.

14. The computer-readable media as recited in claim 13, wherein the instructions perform the further steps of detecting a second label associated with a second object; triggering, in response to detecting, a system for authoring content to be unambiguously bound to the second object; and aggregating the content bound to the first object and the second object into a **single logical entity called a** tour.

15. The computer-readable media as recited in claim 14, wherein the instructions perform the further step of detecting a second label associated with the first object and normalizing the first label and the second label such that the content can rendered during detection of either the first or second label by the device in the playback mode.

16. A computer-readable media having instructions for authoring content to be associated with objects in a physical world, the instructions performing steps comprising: normalizing a read object label associated with an object into an object identifier; placing the object identifier into a ~~database~~**index table repository**; accepting content to be rendered when the object label is read in a playback mode; and binding the content to the object identifier in the ~~database.~~**index table repository.**

17. The computer-readable media as recited in claim 16, wherein the instructions allow a plurality of different label types to be normalized to one object identifier.

18. A method for providing information relevant to a physical world, comprising: detecting with a device a label associated with an object; normalizing information contained in the detected label into an object identifier; using the object identifier to search ~~a database~~**an index table repository** to find content bound to ~~the object~~ **the object** identifier; and rendering the content.

19. The method as recited in claim 18, further comprising the step of retrieving the content bound to the object identifier from local memory in the apparatus.

20. The method as recited in claim 18, further comprising the step of retrieving the content bound to the object identifier from a remote server.

21. The method as recited in claim 18, wherein the content is selected from a group consisting of audio, text, ~~image~~**graphics**, and video.

~~23.~~**22.** The method as recited in claim 18, wherein the label is selected from a group consisting of a barcode, a coordinate, an IR tag, a RFID tag, a timestamp, a text string, and ~~a speech~~**any other label type whose information can be transformed** to ~~text string.~~ **digital data by some transduction means.**

~~24.~~**23.** The method as recited in claim 18, wherein the content is a connection to a live agent.

~~25.~~24. The method as recited in claim 18, further comprising the step of determining the current time and comparing the current time to the timestamp before rendering the content.

~~26.~~25. The method as recited in claim 18, wherein the step of rendering the content
comprises streaming the content from a remote server.

~~27.~~26. The method as recited in claim 18, further comprising the steps of accepting
annotations/feedback after the rendering of the content and binding the annotations/feedback to the object identifier.

~~28.~~27. The method as recited in claim ~~27,~~26. further comprising the step of storing
the annotations/feedback in local memory.

~~29.~~28. The method as recited in claim ~~27,~~26. further comprising the step of storing
the annotations/feedback in a remote memory.

~~30.~~29. A computer-readable media having instructions for providing information
relevant to a physical world, the instructions performing steps comprising: detecting a label associated with an object; normalizing information contained
in the detected label into an object identifier; using the object identifier to
search ~~a database~~an index table repository to find content bound to the object identifier;
and rendering the content.

~~31.~~30. The computer-readable media as recited in claim ~~30,~~29. wherein the content is
selected from a group consisting of audio, text, graphics, and video.

~~32.~~31. A method for providing information relevant to a physical world, comprising:
storing an object identifier indicative of a plurality of read labels associated
with an object into ~~a database~~an index table repository; and using the ~~database~~index table
repository to bind content to the object identifier and, accordingly, the object; whereby the content is renderable when any one of the plurality of labels is detected in a playback mode.

~~33.~~32. The method as recited in claim ~~32,~~31. wherein at least one of the plurality of
labels is ~~custom created~~already present on the object.

~~34.~~33. The method as recited in claim ~~32,~~31. further comprising the step of attaching
at least one of the plurality of labels to the object.

~~35.~~34. The method as recited in claim ~~32,~~31. wherein the plurality of labels is

selected from a group consisting of a barcode label, a coordinate, a RFID tag,
an IR tag, a time stamp, ~~and~~ a text string~~.~~, or any other label type whose information that can be transformed to digital data by some transduction means.

~~36.~~35. The method as recited in claim ~~32,~~31. further comprising the steps of detecting
the plurality of labels.

~~37.~~36. A method for providing information relevant to a physical world, comprising:
associating one or more labels with each of a plurality of objects in a tour;
storing an object identifier indicative or the one or more labels associated with each of the plurality of object in the tour in ~~a database~~an index table repository;
authoring content relevant to each of the plurality of objects in the tour; and
binding the content to an object identifier in the ~~database~~index table repository which
corresponds to the relevant one of the plurality of objects in the tour whereby
the content is renderable when the label is detected by a playback device without regard to the order in which the content was authored.

~~38.~~37. The method as recited in claim ~~37,~~36. wherein the labels are selected from a
group consisting of coordinates, barcode labels, RFID tags, IR tags, timestamps,
~~and text.~~
text strings, and any label type whose information that can be transformed to digital data by some transduction means.

~~39.~~38. A system for authoring and retrieving selected digital multimedia information relevant to a physical world, comprising: a plurality of machine readable labels relevant to the physical world; an apparatus for detecting the
machine readable labels and including programming for normalizing information contained in the detected label into an object identifier; and a digital multimedia ~~library~~content collection accessible by the apparatus storing content
indexed by the object identifiers.

39. The system as recited in claim 38, wherein the apparatus further comprises a
system for authoring digital multimedia in response to detecting one of the plurality of labels which is to be stored within the digital multimedia content
collection and unambiguously bound to the object identifier.

40. The system as recited in claim 39, wherein the apparatus further comprises a
~~system for authoring digital multimedia in response to detecting one of the plurality of labels which is to be stored within the digital multimedia library~~
~~and unambiguously bound to the object identifier.~~

~~41. The system as recited in claim 40, wherein the apparatus further comprises a~~
system for rendering digital multimedia in response to detecting one of the plurality of labels, the digital multimedia rendered being the content unambiguously bound to the object identifier associated with a detected label.

~~42.~~41. The system as recited in claim ~~41,~~40, wherein the digital multimedia ~~library~~content collection includes one or more of audio files, visual ~~image~~graphics files, text files, video files, XML files, hyperlink references, live agent connection links, programming code files, and configuration information files.

~~43.~~42. The system as recited in claim ~~41,~~40, wherein the apparatus comprises programming that renders digital multimedia as a function of output capabilities of the apparatus.

43. The system as recited in claim 3 8, wherein the tour is stored on one or more computer servers external to the apparatus.

44. The system as recited in claim ~~39,~~43, wherein the ~~physical world comprises~~tour and the apparatus ~~labeled locations containing labeled mobile objects.~~ communicate via a wired network.

45. The system as recited in claim ~~44,~~43, wherein the ~~labeled locations are used to~~tour and the apparatus ~~determine proximity of the labeled mobile objects.~~ communicate via a wireless network.

46. The system as recited in claim ~~39,~~45, wherein the ~~digital multimedia library is~~ wireless network comprises a ~~stored on one or more computer servers external to the apparatus.~~ cellular telephone network.

47. The system as recited in claim ~~46,~~38, wherein the ~~digital multimedia library and~~tour resides on the apparatus ~~communicate via a wired network~~.

48. The system as recited in claim ~~46,~~38, wherein the ~~digital multimedia library and the~~ apparatus ~~communicate via a wireless network.~~accesses the tour via the Internet.

49. The system as recited in claim ~~48,~~38, wherein the ~~wireless network comprises a~~ apparatus accesses the tour ~~cellular telephone network.~~ via a voice portal.

50. The system as recited in claim ~~39,~~38, wherein the ~~digital multimedia library~~apparatus accesses the tour ~~resides on the apparatus.~~ via a cellular telephone voice mailbox.

51. The system as recited in claim ~~39, wherein the apparatus accesses the~~

~~digital multimedia library via the Internet.~~

~~52. The system as recited in claim 39, wherein the apparatus accesses the digital multimedia library via a voice portal.~~

~~53. The system as recited in claim 39, wherein the apparatus accesses the digital multimedia library via a cellular telephone voice mailbox. 54. The system as recited in claim 39,~~ 38. wherein the digital multimedia is aggregated into a tour.

~~55.~~ 52. The system as recited in claim ~~39,~~ 38. wherein the digital multimedia is randomly accessible by the apparatus.

~~56.~~ 53. The system as recited in claim ~~39,~~ 38. wherein the digital multimedia is accessible by the apparatus in a sequential order.

~~57.~~ 54. The system as recited in claim ~~39,~~ 38. wherein the apparatus comprises a personal digital assistant.

~~58.~~ 55. The system as recited in claim ~~39,~~ 38. wherein the apparatus comprises a cellular telephone.

~~59.~~ 56. The system as recited in claim ~~39,~~ 38. wherein the apparatus comprises purpose built devices targeted to a specific application.

~~60.~~ 57. An apparatus for authoring information relevant to a physical world, comprising: circuitry for detecting a label associated with an object; and a system for authoring content to be unambiguously bound to the object as represented by the detected label which content is to be rendered during detection of the label in a playback mode.

~~61.~~ 58. The apparatus as recited in claim ~~60,~~ 57. wherein the circuitry comprises a barcode reader.

~~62.~~ 59. The apparatus as recited in claim ~~60,~~ 57. wherein the circuitry comprises an IR tag reader.

~~63.~~ 60. The apparatus as recited in claim ~~60,~~ 57. wherein the circuitry comprises a RFID tag reader.

~~64.~~ 61. The apparatus as recited in claim ~~60,~~ 57. wherein the circuitry comprises a keyboard for inputting textual information.

62. The apparatus as recited in claim 57, wherein the circuitry comprises of analog to digital information transducer.

~~65.~~ 63. An apparatus for authoring and providing information relevant to a physical

world, comprising: circuitry for detecting a label associated with an object; and programming for normalizing information contained in the detected label into an object identifier; a system for authoring content in an authoring mode which content is to be unambiguously bound to the object identifier; and a system for rendering content in a playback mode, the content rendered being the content unambiguously bound to the object identifier associated with a detected label.

~~66.~~64. The apparatus as recited in claim ~~65,~~63. further comprising a communications link for downloading authored content to a remote location and for retrieving content from the remote location for rendering.

~~67.~~65. The apparatus as recited in claim ~~65,~~63. further comprising a memory for storing the content.

~~68.~~66. The apparatus as recited in claim ~~65,~~63. wherein the circuitry comprises a barcode reader.

~~69.~~67. The apparatus as recited in claim ~~65,~~63. wherein the circuitry comprises an IR tag reader.

~~70.~~68. The apparatus as recited in claim ~~65,~~63. wherein the circuitry determines a coordinate location.

~~71.~~69. The apparatus as recited in claim ~~65,~~63. wherein the circuitry is a RFID tag reader.

70. The apparatus as recited in claim 63, wherein the circuitry i s an analog to digital information transducer.

Description

~~CROSS REFERENCE TO~~ RELATED APPLICATION

[0001] ~~This application~~**The present invention** claims ~~the benefit of~~**priority to** U.S. Provisional Patent Application ~~Serial~~ No. 60/~~306,356,~~**306,356** filed on Jul. 18, ~~2001, which is incorporated~~**2001,** ~~herein by reference in its entirety.~~

BACKGROUND OF THE INVENTION

[0002] **1. Field of Invention**

[0003] This invention relates generally to information systems and, ~~more~~

particularly, ~~relates~~ to a system and method for authoring and providing information
relevant to a physical world.

[0004] 2. Description of the Related Art

[~~0003~~0005] The exponential growth of the Internet has been driven by three factors,
namely, the ability to author content easily for this new medium, the simple
text-string ~~(~~, **e.g., uniform-resource locator ("**URL**")** , based indexing scheme for
content organization, and the ease of accessing authored content, ~~(~~e.g., by just
a mouse click on a hyperlink~~)~~. However, attempts made to emulate the success of
the Internet in the mobile device usage space have not been very successful to
date. The mobile device usage space is the whole physical world we live in and,
unlike the tethered ~~PC~~ **personal computer ("PC")** based Internet world where all
objects are virtual, the physical world is composed of real objects,
geographical locations, and temporal events, ~~(~~which occur in isolation or in
conjunction with an object or location~~)~~. These diversities pose problems not
present in the existing Internet world where all virtual objects can be
uniformly addressed by a URL. ~~Thus, there exists a need for a scheme that addresses the labeling of objects, locations and temporal events, a scheme that has an indexing method which treats these different labels uniformly and transparently to the underlying labeling method, a scheme that can help author content seamlessly for these different physical world entities and bind the content to the indices, and a scheme that can provide easy access and playback of the authored content for any real world entity, e.g., object, location and temporal events.~~

[~~0004~~0006] Attempts have been made to build applications that enable seamless
browsing of just one domain, such as the domain of physical objects or the
domain of geographical locations. There have also been attempts to treat
browsing of objects and locations together. However, these attempts fail to
address the key factors mentioned above that made the Internet what it is today,
i.e., the most effective medium for information dissemination. In particular,
these attempts do not **effectively** address the labeling issue, ~~which~~**i.e., interpreting information of different formats across different labeling schemes. This** is a
problem unique to the physical world and not present in the PC-based virtual
browsing method ~~(~~**where** all content in the virtual world can be addressed by a
URL~~)~~, ~~they do not have a uniform indexing scheme across different labeling schemes~~. **Moreover**, they do not support authoring of content that is bound to these
different label types, ~~they do not support~~ content authoring on the device (which is a key
deficiency given that on-device content authoring is the most natural,

efficient, and error-free method for most mobile device usage scenarios), ~~and they do not support~~ nor playback of content indexed by the different labeling schemes.

[~~0005~~0007] To enable seamless mobile browsing which envelops all of these apparently disparate application domains these deficiencies need to be addressed. The absence of a labeling and content binding scheme makes it very hard for one to do custom labeling of objects and bind content to the labels ~~(the solution offered by presently known systems would be a manual error prone process)~~. The absence of an annotation/feedback binding scheme makes it very hard to maintain the correspondence between the content and the annotation/feedback. The absence of seamless bridging of location-based, object-based, events-based, and conventional web hyperlink based services requires different devices/applications to navigate these different domains.

[~~0006] Currently, there~~0008] There are four separate application domains in the mobile device space, namely, object-based devices and applications, coordinate-based devices and applications, ~~timestamp~~temporal based devices and applications, and traditional URL-based devices and applications. Object-based devices can read labels off of physical objects ~~(e.g.~~via barcodes ~~and~~, radio-frequency identification ("RFID ~~and~~"), or infra-red ("IR") tags~~)~~, and are typically used in a proactive fashion where a user scans the object of interest using the devices. These devices attempt to support browsing the world of physical objects in a manner that is similar to surfing the Internet using a web browser. The coordinate-based application domain is an emerging domain capitalizing on the knowledge of geographical ~~location~~locations made available through a variety of location detection schemes ~~such as GPS~~based on a global-positioning system ("GPS"), an assisted-GPS ("A-GPS~~, AOA~~") where satellite signals may be weak, an angle of arrival ("AOA") system, or a time difference of arrival ("TDOA") ~~etc~~system. An existing application domain in the PC-world, e.g., timeline based information presentation, is also making inroads into the mobile device space. However, no devices or applications presently exist that are capable of bridging these different application domains in a near seamless and transparent manner.

[~~0007~~0009] In the field of portable interactive digital information systems that employ device-readable object or location identifiers several systems are known. For example, U.S. Pat. No. 6,122,520 describes a location information system

which uses a positioning system, such as the Navstar Global positioning system,
in combination with a distributed network. The system receives a coordinate entry from the GPS device and the coordinate is transmitted to the distributed
network for retrieval of the corresponding location specific information. Barcodes, labels, infrared beacons and other labeling systems may also be used
in addition to the GPS system to supply location identification information. This system does not, however, address key issues characteristic of the physical
world such as custom labeling, label type normalization, and uniform label indexing. Furthermore, this system does not contemplate a tour like paradigm~~.~~,
i.e., a "tour" as media content grouped into a logical aggregate.

[~~0008~~0010] U.S. Pat. No. 5,938,721 describes a task description database accessible
to a mobile computer system where the tasks are indexed by a location coordinate. This system has a notion of coordinate-based labeling, coordinate-based content authoring, and coordinate triggered content playback.
The drawback of the system is that it imposes constraints on the capabilities of
the device used to playback the content. Accordingly, the system is deficient in
that it fails to permit content to be authored and bound to multiple label types
or support the notion of a tour.

[~~0009~~0011] U.S. Pat. No. 6,169,498 describes a system where location-specific messages are stored in a portable device. Each message has a corresponding device-readable identifier at a particular geographic location inside a facility. The advantage of this system is that the user gets random access to location specific information. The disadvantage of the system is that it does not provide information in greater granularity about individual objects at a location. The smallest unit is a `site` (a specific area of a facility). Another
disadvantage of the system is that the user of the portable device is passive and can only select among pre-existing identifier codes and messages. The user
cannot actively create identifiers nor can he/she create or annotate associated
messages. The system also fails to address the need for organizing objects into
meaningful collections. Yet another disadvantage is that the system is targeted
for use within indoor facilities and does not address outdoor locations.

[~~0010~~0012] U.S. Pat. No. 5,796,351 describes a system for providing information
about exhibition objects. The system employs wireless terminals that read identification codes from target exhibition objects. The identification codes are used, in turn, to search information about the object in a data base system.
The information on the object is displayed on a portable wireless terminal to the user. Although the described system does use unique identification code

assigned to objects and a wireless local area network, the resulting system is a closed system: all devices, objects, portable terminals, host computers, and the information content are controlled by the facility and operational only inside the boundaries of the facility.

[~~0011~~0013] U.S. Pat. No. 6,089,943 describes a soft toy carrying a barcode scanner for scanning a number of barcodes each individually associated with a visual message in a book. A decoder and audio apparatus in the toy generate an audio message corresponding to the visual message in the book associated with the scanned barcode. One of the biggest drawbacks of this system is the inability to author content on the apparatus itself. This makes it cumbersome for one who creates content to author it for the apparatus, i.e., one has to resort to a separate means for authoring content. It also makes it harder to maintain and keep track of the association with the authored content, object identifiers, and the physical object.

[~~0012~~0014] U.S. Pat. No. 5,480,306 describes a language learning apparatus and method utilizing an optical identifier as an input medium. The system requires an off-the-shelf scanner to be used in conjunction with an optical code interpreter and playback apparatus. It also requires one to choose a specific barcode and define an assignment between words and sentences to individual values of the chosen code. The disadvantages of this system are the requirement for two separate apparatus making it quite unwieldy for several usage scenarios and the cumbersome assignment that needs to be done between digital codes and alphabets and words.

[~~0013~~0015] U.S. Pat. No. 5,314,336 describes a toy and method providing audio output representative of a message optically sensed by the toy. This apparatus suffers from the same drawbacks as some of the above-noted patents, in particular, the content authoring deficiency.

[~~0014~~0016] U.S. Pat. No. 4,375,058 describes ~~a~~an apparatus for reading a printed code and for converting this code into an audio signal. The key drawback of this system is that it does not support playback of recorded audio. It also suffers from the same drawbacks as some of the above-noted patents.

[~~0015~~0017] U.S. Pat. No. 6,091,816 describes a method and apparatus for indicating the time and location at which audio signals are received by a user-carried audio-only recording apparatus by using GPS to determine the position at which a

particular recording is made. The intent of this system is to use the position
purely as a means to know where the recording was done as opposed to using the
binding for subsequent playback on the apparatus or for feedback or annotation
binding. Also, the timestamp usage in the system fails to contemplate using a timestamp as a trigger for playback of special temporal events or binding a timestamp to objects, coordinates, and labels.

[~~0016~~0018] In addition to the patents listed above, which are all incorporated herein in their entirety by reference, there are ~~numerous~~ other systems on the market whose common objective is to link printed physical world information to a virtual Internet URL. More specifically, these systems encode URLs into proprietary barcodes. The user scans the barcode in a catalog and her web browser is launched to the given URL. ~~Examples of companies who use this approach are AirClic (http://www.airclic.com), GoCode (http://www.gocode.com), and Digital:Convergence (http://www.digitalconvergence.com).~~ The advantage of these systems is that they link the physical world to the rich information source of the Internet. The
disadvantages of these systems are that the URL is directly encoded in the barcode and cannot be modified and there is a one-to-one mapping between a physical object and digital URL information. ~~BarPoint, Inc. (http://www.barpoint.com) provides a~~[0019] Another conventional system ~~that~~ uses standard universal product code ("UPC") barcode scanning for product lookup and price comparison on the Internet. The advantage of ~~the BarPoint~~this system is that it does not require a proprietary scanner
device and there is an indirection when mapping code to information instead of
hard-coded, direct URL links. Nevertheless, all of the above systems disadvantageously treat each object, i.e., each barcode, as an individual item
and do not provide a means to create logical relationships among the plurality
of physical objects at the same location. Another disadvantage of these systems
is that they do not enable the user to create a personalized version of the information or to give feedback.

SUMMARY OF THE INVENTION

[0020] Therefore, a need has arisen for a scheme that addresses the labeling of
objects, locations and temporal events, a scheme that has an indexing method which treats these different labels uniformly and transparently to the underlying labeling method, a scheme that can help author content seamlessly for
these different physical world entities and bind the content to the indices, and
a scheme that can provide easy access and playback of the authored content for

any real-world entity, e.g., a physical object, location, and/or temporal event.

[0017][0021] To address thethis needsneed and overcome the deficiencies described abovein the related art, the presentinventive inventionconcept is embodied in a system and method for authoring and providing information relevant to a physical world. Generally, theand an apparatus and system utilizes a employing such a method. Preferably, a hand-held device that is capable of reading one or more labels such as, for examplebut not limited to, a barcode, a RFID tag, IR beacontag, location coordinates, and a timestamp, and for authoring and playing back media content relevant to the labels. In the is utilized. In the authoring mode, labels representing objects, locations, temporal events, and text strings, etc. are identified and translated into object identifiers which are then bound to media content that the author records for that object identifier. Media content can be grouped into a logical aggregate called a tour. A tour can be thought of as an aggregation of multimedia digital content, indexed by object identifiers. In the In the playback mode, the authored content is played when one of the above mentioned labels (barcode, RFID tag, location coordinates, etc.) is read and whose generated object identifier matches one of the identifiers stored earlier in a tour. The system also enables audio, text, graphics, and video annotation to be recorded and bound to the accessed object identifier. Binding to the accessed object identifier is also done for any audio, text, graphics, or video feedback provided by the user on the object.

[0018] A better understanding of the objects,0022] The foregoing, and other features and advantages, features, properties and relationships of the invention, will be obtainedapparent from the following detailed , more particular description andof the preferred embodiments of the invention, the accompanying drawings which set forth illustrative embodiments, and the claims, and which are indicative of the various ways in which the principles of the invention may be employed.

BRIEF DESCRIPTION OF THE DRAWINGS

[00190023] For a bettermore complete understanding of the present invention, the objects and advantages thereof, reference may be hadis now made to preferred embodiments shown in the following descriptions taken in connection with the accompanying drawings in which:

[~~0020~~0024] FIG. 1 illustrates ~~an embodiment of the present invention in the context~~a system used for tour authoring, storage, retrieval, ~~of a tour of a shopping center;~~ and playback;

[~~0021~~0025] FIG. 2 illustrates ~~a block diagram~~application domains of ~~an exemplary computer network~~ various label types as a ~~architecture for supporting tour applications;~~ function of the size of the object being labeled and the detection range of the label;

[~~0022~~0026] FIG. 3a illustrates an exemplary tree structure for an instance of a tour;

[~~0023~~0027] FIG. 3b illustrates exemplary file formats supported by a tour;

[~~0024~~0028] FIG. 4 illustrates examples of bindings that may occur during the labeling, authoring, playback, annotation, and feedback stages of a tour;

[~~0025~~0029] FIG. 5a illustrates various label input schemes, label encoding, ~~and~~ label normalization process and their implementation within a tour;

[~~0026~~0030] FIG. 5b illustrates various proactive label detection schemes and ~~an~~ implicit system driven label detection scheme;

[~~0027~~0031] FIG. 6 illustrates a process-oriented view of a tour including pre-tour and post-tour processing;

[~~0028~~0032] FIG. 7 illustrates an exemplary method used for pre-tour authoring;

[~~0029~~0033] FIG. 8~~a~~ illustrates an exemplary method used for tour playback;

[~~0030~~0034] FIG. ~~8b~~9 illustrates an exemplary method for tour playback specifically using a networked remote server site;

~~[0031] FIG. 9 illustrates an embodiment of the present invention in the context of a guided tour of a cemetery;~~

[~~0032~~0035] FIG. 10 illustrates a block diagram of exemplary internal components of a hand-held mobile device for use within the network illustrated in FIG. 2;

[~~0033~~0036] FIG. 11 illustrates an exemplary physical embodiment of a hand-held mobile device; and

[~~0034~~0037] FIG. 12 illustrates a further exemplary embodiment of a hand-held mobile device.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0038] Preferred embodiments of the present invention and their advantages may
~~[0035] Turning now to the figures,~~be understood by referring to FIGS. 1-12, wherein like reference numerals refer
to like elements, ~~there is illustrated~~and are described in the context of a comprehensive device,
system, and method for authoring and providing information to users about ~~a~~the
physical world around the user. In this regard, the ~~system and method~~present invention generally ~~provide~~
provides information ~~by~~through ~~interacting~~interaction with labels, such as, but not limited
to, machine-readable or human identifiable labels on physical objects,
coordinate labels ~~of representing spatial or~~ geographical locations,
~~timestamp~~ and time
labels ~~from~~, preferably in the form of timestamps created by an internal or external
clock~~,~~ ~~etc., which~~ source. All labels are treated uniformly as object , location, or time
identifiers~~. The~~, i.e., each label serves to identify an object, location, or
temporal event. To simplify the present disclosure, the use of the term object
identifier collectively refers to object, location, or time identifiers. These
object identifiers are more specifically used within the system, in a manner to
be described in greater detail hereinafter, to perform various indexing
operations such as, ~~for example,~~ content authoring~~,~~ and playback, and user annotation~~,~~ and
feedback. The ~~system~~present invention is also capable of aggregating object
identifiers and their associated content into a single addressable
~~unit~~database or
information library referred to hereinafter as a "tour."

[~~0036~~0039] To provide a comprehensive system and method for providing information to
users about a physical world, and to allow users to record their own impressions
of the physical world, the system preferably ~~functions~~operates in two modes, namely, an
authoring mode and a playback mode. The authoring mode permits new media
content, e.g., audio, text, graphics, digital photographs, video, ~~etc.~~and various
other types of data files, to be recorded and bound to an object identifier. In
the authoring mode, the system supports content authoring that can be done
coincident with object identifier creation, thereby enabling authored media
content to be unambiguously bound to an object identifier. ~~This solves the problem of maintaining~~In other words,
direct correspondence is maintained between physical object~~/~~, location~~/~~, or timestamp labels and respective media content. The playback mode triggers
playback of media when an object identifier is accessed or detected. In the

playback mode, the system can also be programmed to accept~~/~~ or solicit annotations and/or feedback from a user ~~which can~~to be recorded and further unambiguously
bound to an object identifier. Annotation and feedback ~~are both~~ may be in the form of
user responses to objects ~~seen~~encountered. The difference between annotation and
feedback is fairly small in that the user generally owns ~~the~~or retains rights to
annotations while feedback is typically owned by the person who solicited the feedback. Also, feedback ~~could~~may be interactive, such as, a user responding to a
sequence of questions.

~~[0037] Turning now to FIG. 2, FIG. 2 and the~~[0040] The following description ~~are~~is intended to provide a ~~brief, general description~~overview of a
suitable computing environment in which the invention may be implemented. Although not required or limited as such, the invention ~~will be~~is described in the ~~general~~
context of computer-executable instructions being executed by one or more distributed computing devices. The computer-executable instructions may include
routines, programs, objects, components, data structures, ~~or~~and the like that perform particular tasks or implement data types. ~~The portable computing~~Moreover, the present
~~devices 207~~invention may be operated by mobile users ~~may include~~through the implementation of portable
computing devices, such as, but not limited to, hand-held devices, voice or voice/data enabled cellular phones, smart-phones, ~~notebooks,~~ notebook computers, computing
tablets, wearable computers, personal digital assistants ("PDAs"), or special purpose built devices. These devices may be configured with or without a
wireless network interface~~, purpose built devices, etc~~. The ~~invention~~inventive concept may ~~also~~ be practiced in
distributed computing environments where tasks are performed by computing devices that are linked, preferably through a wireless communications network ~~and~~
where computer-executable instructions may be located in both local and remote
memory storage devices. ~~The remote computer system may include servers, minicomputers,~~
~~mainframe computers, storage servers, database servers, etc.~~

~~[0038] More specifically~~[0041] According to a preferred embodiment of the invention, FIG. ~~2~~1 illustrates
portable computing device 105 in a network architecture ~~200~~ in which a tour server
side is coupled to a client side via ~~a~~ wireless distribution network ~~209. While the wireless~~ 115. Wireless
distribution network ~~209~~115 is preferably a voice/data cellular telephone network,
however, it will be apparent to those of ordinary skill in the art that other forms of networking may also be used. For example, the network can use ~~other forms of~~ wireless
transmission ~~such as RF~~networks based on, but not limited to, radio frequency ("RF"), ~~802.11,~~

802.11 standard, and Bluetooth, ~~etc. in a Wireless Local Area Network (WLAN) or Personal Local Area~~for example, a wireless local area network ~~Network (WPAN), etc.~~ ("WLAN") or personal local area network ("WPAN").

[~~0039~~0042] Connected to the wireless distribution network ~~209~~115 on the client side of the network ~~200~~ are one or more mobile users ~~208 which can~~who may roam indoor and/or outdoor locations to ~~thereby~~ move among ~~a plurality of~~one or more objects ~~201~~107 in the physical world. As will be described in greater detail below, ~~the~~ locations 108 and/or objects ~~201~~107 in the physical world can be represented by one or more machine readable or identifiable object identifiers, such as, barcode labels, RFID tags, IR tags, ~~Blue tags (~~Bluetooth readable tags~~)~~, analog to digital convertible tags; and/or further associated with human identifiable text, location coordinates ~~("labels in the air") or~~ , and timestamps. ~~In this regard, timestamps~~ Timestamps generated by internal clock 109 on mobile device 105 can serve as labels ~~on~~in their own right or can be considered to be qualifiers to the media content bound to an object or a place. By way of example only, media content qualified by a timestamp ~~would~~could be information pertaining to a mountain resort location where ~~Winter~~winter information could be different from ~~Summer~~summer information.

[~~0040~~0043] Location coordinates ~~(~~108 representing, for example, latitude, longitude, and optionally altitude~~) may be~~, are determined by a location determination unit coupled with the mobile device using signals transmitted by GPS satellites or other sources. ~~Alternatively, the~~ In other embodiments, location of the mobile device is determined by other conventional location determination schemes. In yet another alternative embodiment, the location coordinates can be provided ~~at~~by a remote server, and any mobile device requiring such data can ~~address~~receive the location data request ~~to a~~ from the networked remote ~~location~~ server. This is especially useful when the mobile device does not have location identification capability, or in indoor facilities where GPS satellite signals are obscured. ~~The location of a mobile device connected to an indoor WLAN access point can be approximated by the location server connected to the WLAN, by considering known location(s) of wireless access point(s), the signal strength detected between mobile device and access point(s), and possible using additional spatial information about the geometry of the enclosing building space.~~

[~~0041~~0044] To read ~~information from~~ the object identifiers, ~~each mobile user 208 is equipped with a~~ personal mobile device ~~207 having~~ 105 comprises

capture circuitry ~~203~~110 that is adapted to respond to ~~the~~ location coordinates 108 or labels~~. The capture~~ 106 attached to physical object 107. Capture circuitry ~~can be~~110 may comprise a barcode reader, RFID reader, IR port, Bluetooth receiver, GPS receiver, ~~audio receiver,~~ touch-tone keypad, ~~etc~~any analog to digital transducer than can transform label information to digital data, or any combination thereof. In the networked environment, ~~the~~ personal mobile device ~~207 can run~~105 runs a thin or applet client system ~~204~~104 with input and output capabilities while storage and computational processing takes place on the server side of the network. The client system may include a wireless browser software application such as a wireless application protocol ("WAP") browser, Microsoft Mobile Explorer~~, etc~~.RTM., and the like, and support communication protocols ~~with the~~implemented on any type of server well known in the ~~arts~~art, such as ~~WAP, HTTP, etc. In~~, but not limited to, a WAP or hypertext transfer protocol ("HTTP") based ~~non-networked applications, the personal mobile device 207 can contain additional local indexed storage 205 in addition to the client system 204 whereby all processing can take place within the personal mobile device 207.~~ server.

[~~0042~~0045] In a networked environment, ~~a~~ tour ~~may be~~103 is transported via path 113 between ~~a~~ remote server ~~both~~114 and mobile device 105 by ~~a wired connection or a~~ wireless ~~connection.~~network 115. In the ~~wired~~specific case~~,~~ where tour application 104 is implemented on a phone, the application may run both remotely in the context of a Voice extensible markup language ("VoiceXML") browser or locally on the device. Index table repository 116, to be described in greater detail hereinafter, may be either locally resident or remotely accessed via data path 112. Similarly, the multimedia content ~~the tour and~~collection associated ~~data~~with an object identifier may be either locally resident on the device or downloaded or streamed via path 113 with the aid of content proxy 117.

[0046] In an alternative embodiment, a wired network may be substituted for all or part of the wireless network. For example, transfer of tour 103 may be ~~done directly~~ implemented by a modem connection (not shown) between ~~the~~mobile device 105 and ~~a~~ remote server 114 or indirectly using ~~a host computer as~~ an intermediary~~. Examples~~ system 100 using data paths 102 and 101. Moreover, a tour may be authored on a host computer using a client authoring system 100 and either transferred to the device using data path 101 or uploaded to the server using data path 102 for subsequent download later

to another mobile device. Further examples of transferring a tour from a mobile device to a host computer via wired ~~connection~~connections are described in greater ~~detail~~detail below. ~~In the wireless case, specifically in the case of the tour application being used on a phone, the application may run both remotely in the context of a VoiceXML browser or locally on the device.~~

[~~0043~~0047] In the remote server playback case, the connection between ~~the~~ server 114 and ~~the phone~~mobile device 105 need not be held for the duration of the entire tour. ~~The~~For example, the server ~~could~~can maintain the state of the ~~of the~~ last rendered position in the tour across multiple intermittent connections permitting the connection to be re-established on a need basis. The state maintenance not only avoids the user having to log back in with a username/password, but puts the user right back to ~~where he was~~ the last location in the tour, much like a compact disc ("CD ") player remembering the last played track~~. The~~ on a CD. If mobile device 105 is a suitably adapted cellular phone, the server can use the caller's phone number to identify the last tour the user was in. In certain scenarios where the caller's phone number cannot be identified, a user would be prompted for a ~~usemame~~username and password and would be immediately taken to the last tour context. This functionality not only saves on the connection time costs, but also is effective for certain applications such as a tour implemented for providing driving directions using VoiceXML.

[~~0044~~0048] For tour authoring and publishing purposes~~, the~~, mobile device ~~207 might~~105 comprises a ~~have a~~ universal serial bus ("USB") connector so that the mobile device ~~and~~ can be directly connected via path 101 to ~~a~~ host computer~~. For~~ 101. In an alternative embodiment where the personal mobile ~~devices 207 that do~~device does not have ~~a communication link, such as~~ an USB connector, ~~a scheme for tour retrieval (i.e., uploading~~upload of the tour to a host computer~~)~~ can be implemented using a conventional data output, such as, an audio headphone output connected to the microphone input of a PC. Although such ~~output. Though this~~a scheme ~~results~~may result in some audio quality degradation in the re-recording process, it would serve as a safe-backup of valuable content on a PC. When sequential playback is initiated in a particular device mode, ~~called~~referred to as an "~~Upload Playback~~upload playback mode," the index values of a tour are sent as specialized tones

whose frequencies are chosen so to not collide with human speech. ~~The output of the headphones is connected to the microphone input of a PC.~~ Special software running on the PC recognizes the alphanumeric index delimiters between content and regenerates a tour. The alphanumeric indices values could represent normalized label values, such as, timestamps, barcode values, or coordinates.

[~~0045~~0049] To provide for the authoring and/or playback of media content related to **one object identifier or a plurality of object identifiers associated with a** ~~a~~ tour, ~~a~~ personal mobile device ~~207,~~**105,** examples of which are illustrated in FIGS. 10-12, preferably includes object label decode circuitry 1002 that is adapted to read/respond to barcode information, RFID information, IR information, ~~text~~**direct or** ~~input, speech to~~**indirect (obtained from an analog to digital transducer)** text input, geographic coordinate information, and/or timestamp information. The object label decode circuitry 1002 provides input to ~~a~~ tour application 1004 resident on the personal mobile device ~~207.~~**105.** The tour application, which will be described in greater detail below, generally responds to the input to initiate the authoring or rendering of media content as a function of the object label read. For playing the media content, the personal mobile device ~~207 may include one or more of a~~**105 comprises** video decoder 1006 associated with ~~a~~ display ~~1008~~**1008,** and an audio decoder 1010 associated with a speaker 1012. Display 1008 may be a visual display such as liquid crystal display screen. ~~The~~ **In an alternative embodiment, the** device ~~may~~**can** function without a **visual** display.

[~~0046~~0050] For inputting information which may be bound to an object identifier, ~~the~~ personal mobile device ~~207 may also include~~**105 comprises a** means for inputting textual information ~~(~~**via,** e.g., ~~a~~ keyboard ~~1014),~~**1014, a** pointing device ~~such as~~**in the form of a** pen **(not shown)**, **a** touch sensitive screen ~~which~~**that** is part of ~~the~~ display~~,~~ **1008; means for inputting** video information ~~(~~**via,** e.g., ~~a~~ video encoder 1016 and video input 1018~~),~~**,;** and/or **means for inputting** audio information ~~(~~**via,** e.g., ~~an~~ audio encoder 1020 and microphone ~~1022),~~**1022,** **or** touch-tone buttons**, such as, dual tone multi frequency** ("DTMF") **buttons (not shown)** for phones. ~~Various~~

[0051] Referring to FIG. 11, personal mobile device 1100 comprises media content control keys such as, ~~for example,~~ play~~,~~**/stop 1101,** record~~,~~ **1103,** reverse~~,~~ **1105,** fast forward~~,~~

1104, volume ~~control, etc.~~controls 1110, and various other operations can be provided for use in interacting with media content. In this manner, the various control keys can be used to selectively disable device functionality in certain device modes, particularly playback mode, using hardware button shields, device mode selectors, or embedded software logic. Personal mobile device may 1100 may further comprise one or more of the following: an audio input, e.g., microphone 1102; audio output, e.g., speaker 1106 or headphone output 1109; barcode and/or RFID scanner 1108; display 1107; power switch 1111; battery slots 1112; and device mode selector 1113 for alternating between authoring and playback modes.

[0052] Referring to the alternative embodiment depicted in FIG. 12, mobile device 1200 comprises media content control keys such as, play/stop 1211, record 1208, reverse 1201, fast forward 1209, volume controls 1216, and various other operations that can be provided for use in interacting with media content. In addition, the device 1200 comprises audio prompt response buttons 1203 and 1212 for responding to audio questions posed by the device. Also the device may have tour based operations, such as, new tour creation button 1204, tour navigation 1205, tour/slide deletion 1213. Personal mobile device 1200 may further comprise one or more of the following: an audio input, e.g., microphone 1202; audio output, e.g., speaker 1206 or headphone output 1215; barcode and/or RFID scanner 1207; power switch 1219; battery slots 1220; removable storage 1214; USB connector 1217; power for battery recharging 1218; LED 1210 for visual cues.

~~[0047]~~[0053] The ~~mobile personal device 207~~inventive concept can be implemented on any type of computing device, ranging from ~~a personal computer, notebook, tablet, PDA, phone~~existing portable computers, PDAs, and cellular phones, to a purpose-built, i.e., custom made, device. ~~Since~~Because ~~the~~a tour application does not mandate the implementation of all object identification schemes, ~~a~~ mobile personal device ~~207~~105 may implement the label identification schemes most suited for the particular device capabilities and usage context. Also, ~~a~~ mobile personal device ~~207~~ 105 may only support the authoring and/or rendering of particular media. For example, for those mobile devices ~~207~~ that do not have the resources, ~~(~~e.g., a resource-constrained phone~~)~~, to support the full capabilities of the tour application, a tour application proxy could be built for the device, and the resource intensive processing ~~can take~~takes place on the server side. Further, the implementation of tour application proxies 116 and 117 is done based on the storage and computing resources of the device. For example, in one embodiment,

index table 116 is composed of object identifiers that are locally resident, but multimedia content collection 117 is remotely resident. In another embodiment, index table 116 is also remotely resident, i.e., the proxy directs all normalized input obtained from a label detection scheme to remote server 114. The latter embodiment may be preferred on resource constrained devices such as cellular phones. For a device that has enough computing and storage resources, both components of the tour, index table repository 116 and multimedia content collection 117 can be locally resident on the device.

[~~0048~~0054] Turning to the tour application, ~~the~~ tour application 1004 preferably includes executable instructions that can create and modify a tour tree structure ~~(~~, which is discussed in greater detail below~~)~~, for performing various ~~tree~~ tour operations such as, but not limited to, tree traversal, tree node creation, tree node deletions, and tree node modifications. ~~The tour~~Index table 1024 liking content to the tour and the media may be either locally resident or remote on a server. Tour application 1004 ~~also~~ supports ~~the~~ authoring, ~~the~~ playback, annotation, and/or feedback of a tour. ~~The tour~~Tour application 1004 may also support the transformation of a tour from one particular format ~~transformations of a tour~~to another. It will be understood that ~~the~~ tour application 1004 can work in connection with a proxy to perform these functions. Still further, ~~the~~ tour application 1004 can be a stand alone module or integrated with other modules such as, by way of example only, a navigation system ~~or a remote database~~. ~~In this~~ In this latter instance, while the navigation system would provide the details of how to get from point A to point B, ~~the~~ tour application 1004 could provide information pertaining to locations and objects found along the path from point A to point B.

~~[0049] At the server side of the network 200, the server side is preferably implemented as a computer system which is connected to the wireless network 209 by one or more access servers 216. The access servers 216 may be a WAP gateway, voice portal, HTTP server, SMSC (Short Message Service Center) or the like. Additionally found on the server side is an object information server 219, an optional object naming server 209, and an optional location server 211. The object information servers 210 contain an indexed collection of multimedia content, which may reside on one or more external databases (not illustrated).~~

~~The object naming server 209 acts as a master indexer for the object information servers 210 and can be used to speed up access to data. The location server 211 can be used to compute the location of a mobile personal device 207 based on data received from the wireless network 209 or from outside sources. The location server 211 can further work in connection with a map server 212 and with a floor plan server 213 wherein the floor plan server 213 can be a digital repository of building layout data. The server side may also include an authoring system which can be used to add, delete, and/or modify media content stored in the information servers. It will be appreciated that the various computers that can be used within the server side of the network may themselves be connected to one another via a local area network.~~

[~~0050~~0055] To provide information to a user via a mobile personal device, and as noted previously, the system may use the concept of a "tour," which can be considered to be ~~an ordered list of slides~~ **an ordered list of media content** that are indexed by object

identifiers created from ~~text strings, physical object labels, coordinates of geographical locations~~**for example, text strings, physical object labels**, ~~and timestamps representing temporal events. In this regard, a slide is an ordered list of media content which can~~ **coordinates of geographical locations, and timestamps representing temporal events. In this regard, the media content may** optionally **further** contain annotations and feedback. Annotations and feedback are also lists of media content. Media content can further be considered to be an ordered list of digital content in text, audio, graphics, and/or video stored in various persistent formats 311 such as, by way of example only, XML, PowerPoint, ~~SMIL, etc.~~ **synchronized multimedia integration language ("SMIL"), and the like,** as illustrated in FIG. 3b. ~~The slides in a tour may be optionally aggregated into nodes called channels.~~

[~~0051~~0056] In ~~one~~**a particular** embodiment, ~~the~~**a** tour is implemented as a **collection of** multimedia digital information ~~library~~, where the multimedia content is indexed by normalized labels, ~~(~~i.e., object identifiers~~).~~ **generic to two or more interpretation schemes, stored in index table repository 116.** The digital information includes audio files, visual ~~image~~**graphics** files, text files, video files, multimedia files, XML files, SMIL files, hyperlink references, live agent connection links, programming code files, configuration information files, **other data files,** or a combination thereof. Various transformations can be performed on the multi-media content. ~~Example of a transformation is when~~**For example,** recorded audio is transcribed into a text file. The advantage of content format transformations is to allow accessing

the same tour with mobile devices of different capabilities and/or according to user preference. An example of this is accessing a tour using a voice only cellular phone or accessing the same tour with a PDA with display capabilities.

[0052/0057] The aggregation of media content can be done to any depth as deemed appropriate to the application context. This is particularly illustrated in FIG. 3a, which depicts an exemplary instance of a tour in the form of a tree data structure. The nodes of the tree are the tour node 301, the channel node 302, the slide node 303, the and media node, 304. In the example Particularly, media node 304 comprises or links to text, audio, video, graphics, and other data. Slide node 303 points to one or mode media nodes 304. Channel node 302 aggregates one or more slide nodes 303. This aggregation is to facilitate logical grouping of content within a tour. For example, in a museum-specific tour, all exhibits within the Science section may be grouped into a channel 302. Tour node 301 aggregates all channel nodes 302 into the complete structure that constitutes a tour. In the exemplary instance of a tour shown in FIG. 3a, an index table 305 is associated with the tour tree. The flexibility and richness of the tour data structure enables various transformations of tour 310 between different file formats 311 as illustrated in FIG. 3b.

[0053/0058] Index tables 305 are particularly used to gain access to the media content associated with a tour. In this regard, an indexing operation, performed in response to the reading of an object identifier, can result in a tour, slide, or channel being rendered on a mobile personal device 207.105. As noted previously, the tour, slide, or channel can be provided to the mobile personal device 207105 from the server side of the network and/or from local memory, including local memory expansion slots.

[0054/0059] The nodes of the tour hierarchy can contain information appropriate to a given application which can use a logical structuring of information without regard to file format specifications or physical locations of the files. Accordingly, there may be several physical file implementations of a tour and, so long as the structural integrity of the tour is preserved in a particular implementation, transformations can be done between different file formats. However, it is cautioned that, during a transformation, some media content types may be inappropriate/ or "lost" since the destination mobile personal device 207 may

not support some or all of the media content in a tour. For example, a mobile personal device ~~207 with no~~**without a** display **and only audio capabilities** would be limited
to presenting tour media content that is **only** in an audio format.

[~~0055~~**0060**] To author a tour containing information about physical objects, locations, and/or temporal events (~~i.e.,~~ **collectively referred to as "**entities**"**) in
the physical world~~,~~**;** the entities are labeled ~~which~~**with** labels **that** are treated
uniformly as object identifiers. The object identifiers are stored within the system and media content for an entity is bound to its corresponding object identifier. When assigning labels to objects, generally illustrated at stage 401
in FIG. 4, objects that do not have a preexisting label are provided with a customized label. Objects with preexisting labels can include items that have UPC coded tags. Example of custom labeling would be **the** labeling of a picture in
a photo album or a paragraph in a book. It will be appreciated that, even for objects that have preexisting labels, custom labeling ~~may~~**can** be done ~~in certain circumstances~~**if desired**.
The remaining stages illustrated in FIG. 4 include stage 402 where objects/object identifiers are bound to media content and stage 403 where optional feedback and annotations can be bound to objects/object identifiers.

[~~0056~~**0061**] To label geographical location, ~~the concept of a "label in the air" is~~ **location coordinates are** introduced. In ~~an~~
authoring mode, an authoring device, such as a personal mobile device~~207~~**,** determines its current location coordinates using ~~a~~ GPS or similar technology, or
using information available from the wireless network. The computer coordinates
may then be used as the object identifier for the geographic location. The author may bind media content to ~~a "label in the air"~~ **coordinates** the same way as any other label.
Furthermore, the usage of coordinate data does not require the exact coordinate
to be available to initiate playback of the media content bound to the ~~"label in the air~~
coordinate.~~"~~ Rather, a circular shell of influence may be defined around the coordinate that can trigger playback of the ~~media content.~~ **media content.** For simplicity of
authoring, it is preferred that the shell of influence be a planar projection of
the coordinate thereby eliminating the need to consider altitude variations.

[~~0057~~**0062**] It will be further appreciated that various concentric circular shells of
influence may be defined around a coordinate label ~~which shells of influence~~**and** can be bound to unique ~~media content.~~
media content. In this manner, entry into these various shells can trigger audio
and/or visual content authored explicitly for that shell. This can be particularly useful in gaming applications such as, for example, a treasure hunt. ~~An example is using color as an indicator of distance from the labeled object is to display "cold" blue on the mobile device when the~~

~~treasure hunter is far away from the object and gradually turn the display "warm" red (as getting closer) to "red hot" when the treasure hunter reaches the object.~~

[~~0058~~0063] Temporal events require no further labeling, i.e., the timestamp can serve as the label **itself**. In this regard, timestamps can be used to label both periodic and aperiodic temporal events. Furthermore, even when labeling aperiodic events, timestamp labels can have an artificial periodicity associated with them to serve as a reminder of past events. ~~An~~**In an embodiment of the invention, an** internal clock within ~~a~~ personal mobile device ~~207 can be~~**105 is** used to check the validity of timestamp labels which, when read and if valid, can initiate content rendering in playback mode. When using timestamps to label aperiodic events, the timestamps are used as secondary labels to a primary label such as a physical object label or location coordinate. Such labels are thus identified as a consequence of identifying the primary label.

[~~0059~~0064] Text strings can directly serve as labels for indexing media content. ~~It~~**For** ~~is possible that the~~**example,** text ~~string was~~**strings may be** the output of a ~~speech recognizer. By way~~**transducer that can transform any non-digital data into digital data, for example, a text string or any other computer specific data type that can represent the digital data. By way of** ~~of~~ further example, an instance of a tour can be a hierarchical set of markup language, e.g., XML or **hyper-text markup language ("**HTML**"),** pages combined with one or more index tables. With the addition of index tables and ordering of the pages, an existing web site could be implemented as a tour where all indexing is done using text strings.

[~~0060~~0065] ~~The~~**A** labeling scheme for physical objects ~~could~~**can** range from manually writing down a code on an object to tagging the object with a barcode, RFID tag ~~or~~, IR tag, **or any conventional type of identification means**. For scenarios that need custom labeling, the labeling can be done in any order regardless of the labeling scheme being used. This eliminates the need to maintain an extraneous order between labels and objects which, in turn, eliminates errors in the labeling process.

[~~0061] The~~0066] **In an embodiment of the invention,** data structure representation for a normalized label ~~could be~~**is** a variable length null-terminated string. ~~When~~**Alternatively it could be any data type that can represent the digital data that was retrieved from the label, the retrieval being followed by an optional transformation of non-digital data into digital form. For example, when** a barcode label is scanned, the scanning device returns the label in a device specific manner,

which is then transformed by the normalization process into a null terminated string. For example, if the value encoded on the barcode label was the UPC code of a particular product ~~"Altoids" brand peppermint candies~~, after ~~the~~ normalization, it would become a numeric string, ~~string of the form "05928000200." Note that the normalized string value does not~~ such as, "05928000200," which does not reveal any information about how the value was retrieved~~—it~~ because normalization strips out all information about the particular label retrieving process. These normalized or generic strings, also referred to as object identifiers, are then used as indices for organizing authored content.

[~~0062~~0067] During content authoring, since labels are normalized into object identifiers, multiple labeling schemes may be used to access the same piece of media content, provided the data encoded by these labeling schemes ~~yield~~yields the same value after normalization. For example, an object can be labeled by associating a UPC text stream therewith and media content bound to the object can be retrieved by entering the same UPC text stream or by scanning a UPC bar code corresponding to the UPC text stream. In a further example, a coordinate obtained from a GPS type device may be embedded into a barcode label, an RFID tag, or even etched into an object. Thus, in playback mode, ~~described below,~~ a personal mobile device ~~207~~105 with any one of the label detection capabilities, e.g., barcode reader, RFID tag reader, IR port, digital text or ~~speech~~analog to digital text transformation capabilities, can be used to retrieve media content bound to the object identifier corresponding to the object since, in this case, the information that is embedded into the different labels is a normalized form of label data, namely, the coordinate. For multiple labeling schemes to index the same object the data in multiple labels, the scheme should be such that they all result in the same normalized value. In the above example, the barcode label, and the RIFD tag, embed the same value~~—~~, e.g., location coordinates.

[~~0063~~0068] Just as multiple labeling schemes result in the same normalized index value (referred to as the object identifier), multiple distinct object identifiers can refer to the same object. An example ~~can illustrate~~illustrates the difference between multiple labeling schemes used to yield the same object identifier, and multiple distinct object identifiers indexing the same object. Consider a street with ~~and~~an embedded RFID tag. The coordinate values returned by a GPS device ~~could be~~ are embedded into the RFID tag. Content ~~could be~~is authored for the normalized value--the

coordinate. A user may also create a text-string label for that street name and
bind the normalized version of that label to the same content. When a user of
the tour comes to that location, he could access the content using either a GPS
device or a RFID reader. Alternatively, he may read the street name and enter
the street name to access the same content. In this case, the GPS and RFID
labeling ~~scheme~~schemes yield the same normalized index value. The text string labeling
results in a different labeling value that indexes the same content.

[~~0064~~0069] Further, if the device only has location determination capability and a
text input mechanism, the location of the user could be used to narrow down the
object identifier search space. ~~This would be a very nice~~An advantage of this type of functionality ~~from a~~is ~~user experience standpoint since~~that it can be used for automatically listing
all objects in the proximity of
the user. In those scenarios where there are a large number of objects, the
culled search space could help the user by auto-completion of the street name as
he types it in (in the case of the device with keyboard input scheme), or
unambiguously recognize the street name (in the case of the device with speech
recognition capability) vocalized by the user. In this scenario, two object
identifiers are used in both authoring and playback. In the playback mode, one
of the object identifiers (location coordinates) is used to aid the detection of
the other (the street name text string).

[~~0065~~0070] A special case of multiple labeling methods being used to refer to the
same media content is the functionality to index any tour with an ordinal index
value of the content, the implicit ordering of content present in a tour. This
ordering provides an alternate way to get to authored content regardless of its
normalized labeling method. This is a special case because the normalized label
is a digital text string representing the ordinal index of the content which may
not be the same as the normalized index type explicitly used during authoring.
For example, content authored with coordinates being used as the normalized
value can be retrieved using the ordinal index value for that content.

[~~0066~~0071] To access and/or author media content, a label identification process is
performed as illustrated in FIG. ~~5~~5a. The outcome of the label identification
process is an object identifier that can be used for indexing. As illustrated,
the object identifier is independent of the label type. Furthermore, as noted

above, different kinds of ~~data 502~~**label input schemes 501** can be ~~embedded in~~**used to detect and retrieve** different types of labels ~~501~~**502** and the normalization process 503 yields a normalized index value. **The data returned from the label normalization process 503 may be represented by any computer support data type and not limited to a alphanumeric string.**

[~~0067~~**0072**] In the authoring mode, ~~the~~**label** identification ~~of the labels~~ is done proactively by the user either manually or with the aide of an apparatus, such as a bar code scanner, optical scanner, location coordinate detector, and/or a clock. An object identifier can be used to generically represent one or more of these identified labels. Specifically, an object identifier can be used as a normalized representation of different labels and, thereby, can serve the key purpose of allowing different labels to uniformly index media content in a manner that is transparent to their underlying differences. Furthermore, as noted previously, since labels are treated in a normalized manner, it is possible for label detection to be performed differently during the authoring and playback operations.

[~~0068~~**0073**] To maintain the association between an object identifier and media content for an object, an ~~indexed database~~**index table** is created during the authoring mode of operation. When a label is identified and an object identifier created, ~~a~~ search **111** is done for the object identifier in ~~the database.~~**index table repository 116.** If the object identifier is not already in ~~the database~~**index table repository 116** the object identifier is added to the ~~database.~~**index table repository 116.** As an example only, the ~~database~~ **index table repository 116** can be implemented using index tables and flat files, relational or object based database systems, ~~naming~~ and **the like.** ~~directory services, etc.~~

[~~0069~~**0074**] Once an object identifier is identified within ~~a database,~~**index table repository 116,** media content can be mapped to the object identifier. As noted previously, the media content can be in one or more formats including text, audio, graphics, digital image, and video. Multiple media content can be associated with the same object identifier within a ~~database~~**index table repository 116** and can be stored in one or more locations. To remove errors in the indexing process, such as associating media content with the wrong object identifier and, accordingly, the wrong object, when a new object is identified in the authoring mode, the system can create a new entry in the ~~database~~**index table repository 116** and immediately prompt the user to author/identify media content that is to be associated with the object

identifier. This coincident object identifier creation and authoring/identifying
allows media content and object identifier binding to occur nearly instantaneously.

[~~0070~~0075] The advantage of the labeling and media content scheme described above is
particularly seen in practical applications such as, for example, home cataloging situations where picture albums, CD collections, book collections, articles, boxes, ~~etc.~~ **and other articles** are organized. ~~If~~**It** also finds use in commercial contexts, both small and large, where a vendor might wish to provide
information on objects being sold. An example of a small commercial context usage is an antiques vendor labeling his articles and/or parts of articles and
associating media content therewith that might explain historical significance.
In this regard, the objects can be quickly labeled in any order and have content
quickly and easily associated therewith. In a larger commercial context, a vendor can author daily promotions and sales information by scanning a label associated with an object and associating media content describing the promotion
and sales information with the object.

[~~0071~~0076] While ~~the database~~**index table repository 116** can be created using a host computer, it
is preferred that ~~the database~~**index table repository 116** be created using the mobile
personal device ~~207.~~**105.** To this end, the mobile personal device allows the user to
read the label and author the content that is to be associated with the read label. The mobile personal device ~~207,~~**105.** or the server side components, will then
automatically map the content and the created object identifier to each other within ~~the database.~~**index table repository 116.** It will be appreciated that this makes the
binding of coordinates particularly easy since the content author can directly
create content to be mapped to the coordinate at that very location. A particular example of this would be a real estate agent creating a tour of a home while touring the home. It would also be possible for a potential homebuyer
to author feedback which can also be mapped to the coordinates as the potential
homebuyer tours the home.

[0077] The process for authoring a tour is generally illustrated as steps 612-614 in FIG. 6 (pre-tour 611 being performed with the assistance of ~~an~~ authoring
tool 615) and steps 701-709 in **FIG. 7. Authoring process 611 begins by labeling
(step 612) objects if they do not already have a label or require application specific labeling. Steps 701 and 702 correspond to these steps for an object that does not have a label. The labeling of objects (step 703) can be done in any order. Subsequent to the labeling, in the object cataloging (step 613), an**

index table is created using the label indices obtained by scanning the object
labels and normalizing the retrieved labels (step 704). Simultaneous to the label detection, content is authored and bound to these indices (step 705). The
authoring process could done by authoring tool 706 that is resident on the mobile device. The final step in the tour authoring process involves publishing
it, which could range from saving it in local storage or downloading to a mobile
device or uploading it to a server. The storage choice would be determined by ~~FIG. 7. Furthermore, an~~the author ~~can choose~~of the tour. An author chooses to make some or all of his tours
private or public (step 707). A private tour does not mean that it cannot be stored on a server~~.~~, but rather refers to generally that only particular ~~Public tours are open to public, possibly at a price. It is left to~~ authorized users may view the
~~discretion of the~~media content ~~creator.~~typically stored in a private secure storage (step 708). User authorization and data verification can be performed using conventional techniques. Moreover, security of the media content can be enhanced by implementing one or more cryptographic techniques, such as, but not
limited to, symmetrical or asymmetrical encryption, digital signatures, hashing,
and watermarking. Where security is not of concern, public tours can be freely
accessed by the public (step 709). In an embodiment of the invention, access to
the tour is granted upon a user's payment of a fee.

[~~0072~~0078] Still further, browsed web pages can be aggregated into a tour since the
browsing process creates an ordering of content and an index table with the links that were traversed during the browsing~~(~~. Moreover, it is also ~~conceivable~~possible
that all hyperlinks in the pages visited could be automatically added into the
index table~~)~~. The browsed content can then be augmented with annotations and feedback which are bound to indices accessed in this browsing sequence. Thus, playback of one or more tours or conventional web browsing can be treated as an
authoring of a new tour that is a subset of the tours and web pages navigated in
playback mode. This functionality is very useful to create a custom tour containing information extracted from multiple tours and conventional web pages.

[~~0073~~0079] To playback media content that has been mapped to an object identifier
within ~~a database~~an index table repository, the system determines the object identifier
for a read label, searches for the object identifier in a ~~database~~index table repository, retrieves the media content associated with the object identifier,
and sequentially renders the media content on the personal mobile device~~207.~~. This

is generally illustrated in FIG. 6 as steps 622-624 related to ~~the~~ tour process 621 and as steps 801-804 illustrated in FIG. 8. The first step in tour playback is the label detection (steps 622 and 801). The normalized label is then used to index an index table repository. If the index is found (step 802) it results in retrieval (step 623) of media bound to that index during authoring stage and rendition of the retrieved media (step 804). If the index is not found, a typical action would be to report an error to the user (step 803). The tour may be also authored to provide alternate index lookup schemes to find an unmatched index such as, for example, an index search in select URLs. If the index is found, then that index can be added to the tour's index table repository and the content can then become part of the ordered elements of the tour. Subsequent to the rendition of the retrieved media, the tour may have been authored to solicit/accept feedback/annotation (step 624) from the user. It can also result in initiating a live connection with a remote human or automated agent which may culminate in a commercial transaction. During the playback mode, it is preferred that, if the same media content is being indexed by the reading of multiple labels repetitious playback of the same content is avoided.

[~~0074~~0080] Label identification in the playback mode is virtually the same as the label identification in the authoring mode. While label identification initiates object creation in the authoring mode, label identification initiates label matching followed by media rendering (if the label has an object identifier) in the playback mode. Furthermore, in playback mode, in addition to manual label reading, label reading may be automatically initiated either by a location-aware wireless network, an RFID tag in the proximity of the device, or by an internal clock trigger system. As noted, the outcome of the label identification process is an object identifier that can be used for indexing media content.

[~~0075~~0081] Once a match is found in ~~a database~~the index table repository for the object identifier, media content bound to that object identifier can be sequentially rendered, provided that the media content is supported by the mobile personal device~~ 207.~~. Playback of media content can be triggered in three ways, namely, by a user manually initiating the label identification, by the automatic reading of a label, or by a sequential presentation, e.g., a linear traversal of elements of a tour. ~~The~~ Referring to FIG. 2, the first two ~~method~~proactive methods 203 of triggering

playback enable the tour to provide a user experience somewhat similar to having a human guide; the manual triggering being equivalent to the user asking a particular question and the automatic triggering 204 being equivalent to an ongoing commentary. Thus, the tour provides a richer user experience than the one provided by a human guide since these two methods of playback serve as two logical channels containing multiple media streams. To ensure that two channels do not conflict and the transition between these two channels is seamless, one channel can be designated as a background channel which has a lower rendering priority than the other. When a background feed is being inhibited as a function of its lower priority, an application may choose to provide a user with an interface cue (e.g., audio, graphics, text, or video) that indicates a background feed is available. FIG. 2 plots the object sizes 201 on the X axis

~~[0076] It is possible during the label identification process that a label detected~~ and the Label detection range 202 on the Y axis. It illustrates that proactive label detection scheme works for small objects with low detection range and implicit label detection 204 works for large objects with longer detection range. Furthermore, as user moves between small and large objects with varying detection ranges, the transition between these domains 205 is made seamless by the background and foreground channel scheme as described above. The various label detection schemes that apply for these different domains are listed in ~~the physical world does not have a corresponding object identifier in a database. In this case, the tour may be authored to provide alternate index lookup schemes to find an unmatched index such as, for example, an index search in select URLs. If the index is found, then that index can be added to the tour's database and the content can then become part of the ordered elements of the tour.~~ FIG. 5b.

[~~0077~~0082] During the playback mode, generally illustrated in FIG. ~~8b,~~9, a user may be given the ability to annotate content as particularly illustrated as steps 805 and 806 in FIG. ~~8a.~~8. The media for accepting annotations depends upon the capabilities of the device that accepts the annotations. When multiple objects qualify for annotation, a user should be prompted to choose among these multiple objects. An example of this may arise when a user stopped playback of a manually scanned object and the location of the object happens to coincide with a coordinate for which content is available. Feedback, illustrated in steps 807 and 808 ~~of FIG. 8a, could also~~may be made an interactive process. Still further, the tour may also

support the notion of a live-agent connection facility which enables the user to
connect directly to a human agent to initiate a transaction. This is particularly useful when the mobile personal device ~~207~~ is embodied in a cellular
telephone. The user may initiate an electronic e-commerce transaction using the
established connection~~. During the tour the user may send asynchronous~~, **the connection being made to a live or automated agent.**
~~messages to other users of the communication network. This message can be a voice mail message left in a secure access protected voice mail box picked up by~~
~~the recipient of the message from the mail box ("poste restante"). The message~~
~~can be a reminder alert to the sender herself delivered at a future time. The system may apply transformations on the message such as, by way of example, converting a voicemail to text and post it on a web site, or create an SMS message, or email representation of the message and deliver it to the addressee.~~

[~~0078~~**0083**] As noted above, the authoring and playback of a tour imposes no constraints on the physical location of a tour or its contents, i.e., it could
be locally resident on the mobile personal device or remotely resident on a server. When remotely located, the tour can be accessible by one of the several
wireless access methods such as, ~~for example, WPAN (Wireless Personal Area Network)~~, WLAN ~~(Wireless Local Area Network)~~, and **wireless wide area network ("**~~WWAN (Wireless Wide Area Network~~**")**. Furthermore, the media content could be pre-fetched, downloaded on
demand, streamed, etc. as is appropriate for the particular application.

[~~0079~~**0084**] Feedback and annotation provided in the context of a tour, the creation
of which is generally depicted as 631 in FIG. 6 including steps 632-634, could
also be resident in any physical location. **In step 632, annotations and feedback**
are archived locally on the mobile device 105 or uploaded to a server 114, with
time and version information that help identify their creation times. Since **feedback and annotation may be hard to interpret separate from the tour due to a**
lack of context, annotation and feedback may be merged 633 with the tour. Since
feedback/annotation is bound to object identifiers that provide the context for
the annotation/feedback, it is also possible to create a tour subset of an original tour that contains only those elements which have annotation and feedback. This would be very useful if the user is interested not in recapitulating the entire tour but only those parts that were annotated or for
which feedback was provided. To this end, a tour application running on a PDA,
for example, can easily send the annotations and feedback to an appropriate destination as an email attachment for rendering by a party of interest as a new

tour. In other forms, tour publishing 634 with feedback and annotation could be uploading to a server. An example of this usage is a parent annotating a child's language learning process, described in detail below. After the parent annotates the tour, the tour may be uploaded to a server 634 for sharing it with the rest of the family.

[0085] FIG. 9 illustrates usage of the system in both a wired and wireless network for playback of a tour. The steps listed here have been illustrated in detail in FIGS. 6-8. If the device is not wireless network enabled (step 901) then the tour is downloaded by a wired connection (step 914) from the network. The next step is to detect a label (step 902), decode and normalize the label (step 903), and in the wireless network case (step 904), download the media from the remote server (step 915). If the device is not network enabled, content is retrieved from local store (step 905) since it is has already been transferred by a wired connection. The content is then rendered (step 906). If annotation/feedback is enabled (step 907), then for a public tour (step 908), the annotation is uploaded (step 912) to server 913 if a connection (step 910) is available.

[0086] If a connection is not available, it is queued (step 911) for future upload. Annotation for private tours are stored locally (step 909).

~~[0080]~~[0087] The following description ~~and Table~~, with the aid of Tables 1 and ~~Table~~ 2 set forth below, generally describe applications in which ~~the~~a tour may be used.

1TABLE 1 Application categories Type Description of Application Labeling scheme
1 Physical label-based applications barcode, RFID, IR, text strings, any label ~~speech to text strings~~that can be transformed to digital data by some transduction means, timestamp 2
Location-based applications Coordinates, RFID, digital text strings, ~~speech to text strings, any label~~ that can be transformed to digit- al data by some transduc- tion means, timestamp 3 Timestamp based applications timestamp 4 Linear ordering based applications no label, application depends on linear ordering of tour content.

~~[0081]~~
[0088]

2TABLE 2 Examples of Applications Device Application Application Labeling Purpose Server # Name Description scheme Built PDA Phone Support 1 My First Child's voice cataloging Time-stamp X Optional - Words ~~cataloging~~ while ~~needed only if (Type 3)~~ child is learning ~~device has~~ to

needed only if (Type 3) speak. Parent ~~network~~ can annotate ~~connectivity~~ ~~child~~device has child's utterances
network connectivity. Content authored by a parent/child may be uploaded to a server using an intermediate host such a PC 2 Childs Childs label based learning
Hand-~~written~~ X ~~No learning~~Content learning device. ~~labels device~~ Objects in the ~~(numbering) (Type 1)~~ house written authored by a device are tagged ~~or Barcode~~ by parent. Child labels parent/child (Type 1) identifies the
distinctive (numbering) may be tags on object and scans or Barcode uploaded to a
them to get an audio server using feedback. This device can an also he used to
scan intermediate annotated books with host such a PC embedded ~~tags~~ 3 Travelers Label
objects and record Hand-~~written~~ X X X Only for Language ~~record~~ name of ~~labels~~object in a foreign
written phone Learning ~~object in a foreign~~language labels Tool. (numbering) ~~Tool. language~~ (Type 1) or Barcode ~~(Type 1)~~ 4
Picture Album cataloging. home Hand-~~written~~ X X X Only for album objects cataloging~~, home labels~~
written phone annotation ~~objects cataloging~~labels (Type 1) (numbering~~) (Type 1~~) or Barcode 5 Class ~~Lecture~~ When
professor ~~Hand written~~uses a Hand- X X X Only for ~~Annotation uses a~~ Lecture printed ~~labels phone (Type 1)~~ book as the ~~(numbering)~~written phone Annotation reference for his ~~or Barcode~~ lectures, labels (Type 1) his lecture can be
spliced ~~by~~(numbering) bu the student and he can or Barcode correlate the page of
the book with the appropriate annotation from the lecturer. 6 Package Useful for
managing a Handwritten X X X Only for Annotation, ~~managing~~move, a collectors fream
labels phone Cataloging ~~move, a~~for cataloging possessions. (numbering) Private ~~collectors dream~~ or
Barcode Collectibles ~~for cataloging~~ (DVD, CD, ~~possessions.~~ books, etc) (Type 1) 7 ~~Focus Wine tasting, Handwritten X X X Only for Groups, product rating for labels phone Marketing consumer reports, (numbering) Information etc. or Barcode Collection, Product Rating Tool (Type 1) 8~~ Shopping Record and
playback Barcode, X X X Only for List ~~playback~~ grocery shopping list or Handwritten phone
(Type 1) ~~shopping list or labels~~ other to-do list ~~9 Personal~~labels 8 Antique Seller labels ~~Handwritten X X X Only for Retail~~ objects, Handwritten X X X Only for Shows, authors ~~labels phone Applications~~ content, buyer ~~(numbering) Art & Crafts~~ plays ~~back or Barcode and Antique content Shows,~~labels phone Auctions, back
content (numbering) Art or Barcode Galleries car showroom - ~~Art Galleries~~ label parts ~~of car~~ (Type 1)
of car to explain features of the product ~~10 Networking Attendees wear Handwritten X~~9 City. Multimedia Tours of cities
~~X Only for Party, device readable labels, phone Singles Party badges, each Barcode, (Type 1) person can IR tags publish a short introduction of her/himself~~

~~11 Talking Directions, store Barcode, X X Only for Malls, directory RFID phone~~
~~Outlets, information,~~
Barcode X X For Phone, Museum and museums and/or RFID For device Tours, Art label, with network Galleries Coordinates ~~Stores, coupons, specials, Retail product~~
~~reviews, (Type 1 and price comparison, Type 2) Guide to shopping malls, outlets,~~
~~retail stores, etc. 12 Poste The service offers Primary label X X Yes Restante a~~
~~voice and web can be (Type 1, accessible location, Type 2, Type personal barcode, etc. 3, and Type communication Secondary 4) portal on a server label:~~
~~for people to timestamp leave tours for others to use. 13 Talking Children can~~
~~go Coordinates X X Only for Treasures treasure hunting and physical phone Museums, in science centers labels Galleries, and the more (barcode, Exhibitions, talking treasures RFID, IR, Trade they find and etc) Shows, learn~~
~~they are Science rewarded. Centers Note: Talking (Type 1 and Treasures tour is~~
~~Type 2) not limited to audio, it may include any multimedia content 14 Talking~~
~~Tour of famous Coordinates, X X Only for Graves cemeteries RFID, phone (Type 2~~
~~and (Arlington, Pere text strings, Type 1) LaChaise speech to Cemetery, text Hollywood forever cemetery, etc) Find A Grave biographic tours of celebrities (Graceland) 15 Talking National park Coordinates. X X Only for Trails nature trails. RFID, phone (Type 2 and (Grand Canyon, text strings, Type 1) etc) speech to text 16 Talking Tour Guides for Coordinates, X X Only for Cities cities and RFID, phone (Type 2 and buildings, text strings, Type 1) Freedom Trail in speech to Boston, The Mall text in Washington D.C., interiors of historic buildings churches, town halls, historic ships, etc 17 Voice Trails Waypoint Coordinates X X Yes (Type 2) annotations. People can share their experiences, opinions. Multiple authors can author content for the same label.~~
~~The individual experiences are aggregated on a web site hosted on the internet~~
~~into a shared tour of the community. Authors can upload to the tour host site and users can download to their mobile apparatus. Example all people who are walking the Appalachian Trail record their diary~~, **connectivity (Types 1, 2, Timestamp,**
3, and 4) linear ordering

[~~0082~~0089] Examples of applications are shown in Table 2, applications 1-9. For example, the system and method can be used for cataloging the early words of a child (Table 2, application 1). All parents can fondly recall at least one memory of their child's first utterance of a particular word/sentence. They are also painfully aware that it is so hard to capture those invaluable moments when the child makes those precious first utterances of a word/sentence (by the time parent runs off to fetch an audio/video recorder, the child's attention has

shifted to something new and it is virtually impossible to get the child to say
it again). Also the charm of capturing the first utterance is never the same as
the subsequent utterance of the same word/sentence.

[~~0083~~0090] To solve these problems, the apparatus described herein can be used to
create a tour with a voice-activated recorder which records audio and catalogs
it using a timestamp as the index. The system can be used to aggregate
words/sentences spoken separately for each day thus serving as a chronicle of
the child's learning process. The system can also be used to permit annotations
of the authored content, the authored content being the child's voice. For
example, a parent can annotate a particular word/sentence utterance of a child
with the context in which it was uttered making the tour an invaluable chronicle
of the child's language learning process.

[~~0084~~0091] The system can also be used to allow the parent to author multiple
separate sentences in the parents own voice. This sentence would be randomly
chosen and played when the child speaks to thereby encourage the child to speak
more. The authored tour and the annotation can be retrieved from the device for
safe-keeping **and for sharing with others by uploading to a remote server. Uploaded content may be made accessible as public or private tours accessible by a cellular phone or PDA with wireless network connectivity**. Though digital voice
recorders of different flavors abound in the market, none of them match the key
capabilities of the present invention which makes it best suited for this
application. In particular, these devices do not support annotations of already
recorded content nor authoring by a parent which is subsequently played as
responses to the child speech which can serve to encourage the child to speak
more.

[~~0085~~0092] The above-described functionality of the system can be integrated into
child monitoring devices existing in the market today, such as the "First Years"
brand child monitor. Specifically the capability of this embodiment may be
integrated into the transmitter component of the device. It will be appreciated
that the receiver is not an ideal place for integration since it receives other
ambient RF signals in addition to the signals transmitted by the transmitter.

[~~0086~~0093] In still another application, the system and method can be used as a
child's learning toy (Table 2, application 2). Preferably, in this application,

a child-shield that selectively masks certain apparatus controls can be placed on the personal mobile device ~~207~~. The "toy usage" of the apparatus highlights ease of content authoring and playback. In an example of this application, a mother labels objects in her home (or even labeling parts of a book) using barcode ~~or RFID labels~~, **RFID or any other label type that can be transduced by some analog to digital means,** and records information in her own voice about those objects. The child then scans the label and listens to the audio message recorded by the mother. The mother could hide the label in objects around the house, making the child go in search of the labels, find them and listen to the mother's recording. It would thus serve the purpose of a treasure hunt.

[~~0087~~**0094**] Yet another usage of the system and method is as a foreign language learning tool for an adult (Table 2, application 3). When an object is scanned, the personal mobile device would play the name of that object in a particular language. Still further, the system and method can be used to implement a digital audio player where the indexing serves as a play list.

[~~0088~~**0095**] In its usage as a cataloging apparatus, the subject system and method can be used to catalog picture albums, books, ~~CD, DVD collections,~~ boxes during a move to a new apartment, etc. (Table 2, applications 4, ~~5,~~ 6). The system can rely on a simple labeling scheme~~. The device can be supplemented with~~ **which could involve using labels that are already present on the** ~~pre-printed, self-adhesive barcode labels (similar to those used as postal address labels). In this regard, a~~**objects of interest or affixing custom labels on the objects. . A** user might label the pictures, etc. in any desired order with a unique number. Coincident with the labeling, or subsequent to the labeling process, the user may author content for a particular index and manually preserve the association between the index value of a picture, etc. and the authored content. Should the mobile personal device ~~207~~**105** include a barcode scanner, the barcode scanner can assist in maintaining the correspondence between the picture, etc. and the authored content by supporting coincident authoring of content with the label detection.
In this implementation the labeling scheme would be done using any barcode-encoding scheme that can be recognized by the barcode reader. In this scenario the author of the tour and the playback of the tour might be the same person or different persons.

[~~0089~~**0096**] The mobile personal device ~~207~~**105** can also provide interface controls for providing digital text input, e.g., an ordinal position of content in a tour. It

may have an optional display that displays the index of the current content selection. Interface controls can provide an accelerated navigation of displayed indices by a press-and-hold of index navigation buttons thus enabling the device to quickly reach a desired index. This is advantageous since the index value may be large making it cumbersome to select a large index in the absence of keyboard input. The mobile personal device ~~207~~105 could also be adapted to remember the last accessed index when the device is powered down to increase the speed of access if the same tour is later continued. In further embodiments, the personal mobile device ~~207~~105 can have a mode selector that allows read only playback of content. This avoids accidental overwrite of recorded content.

[~~0090~~0097] When the system and method is used as a "personal cataloger/language learning/audio player," then the tour authoring and playback apparatus ~~207~~105 need only be provided with object scanning capability as it is intended for sedentary usage and, therefore, need not support coordinate-based labeling. This personal mobile device ~~207~~105 can be adapted to allow multiple tours to be authored and resident on the device at the same time.

[~~0091~~0098] The system and method can also serve as a memory apparatus, for example, assisting in the creation of a shopping list and tracking the objects purchased while shopping to thereby serve as an automated shopping checklist (Table 2, application ~~8~~7). To this end, the system can maintain a master list of object identifiers with a brief description of these objects created in the authoring mode.

[~~0092~~0099] Table 2, applications ~~10-17~~8 and 9 are examples of tours particularly targeted to cellular phones and handheld devices (PDA). The system can be used as a tour authoring and playback device that implements all forms of object labeling and indexing mentioned earlier, e.g., text strings, ~~speech-to-text~~transduced analog to digital data, barcode, RFID, IR, location coordinate, and timestamp. All of the tours may include any multimedia content and are not limited to audio. One application of such a "tourist-guide" is a tourist landing at an airport and using the system to obtain information about locations, historical sites, and indoor objects~~.~~, seamlessly transitioning between proactive and implicit label detection

Another application is a sightseeing walking tour (Table 2, application 16) of a historic town where an outdoor street tour is intermixed with visiting interiors of buildings along the way. In this application, a variety of labeling methods may be used as depicted on FIG. 5. It can be appreciated that multi-lingual versions of the tour may be bound to the same labels. It can be appreciated that in a city where the visitor is unable to read street signs due to language barriers (such as Westerner cannot read Japanese letters), or a blind person, still would be able to receive the same information as someone proficient in the local language. Another application of the apparatus is a user going to a large shopping mall, and using the apparatus to navigate the mall, and to find information on items in a store.

[0093] "Poste Restante" service (Table 2, application 12) offers a voice and web accessible personal communication portal (multimedia mailbox) on a server for people to leave tours for others to use. The owner and authorized visitors access the personal portal (multimedia mailbox) via a toll-free telephone number or via a web browser. The owner can leave reminders to herself (where did I parked my car?) or share tours (such as "My First Words") with friends and family or even strangers.

[0094] In yet another application the tour is built by multiple authors and the tour represents the shared experiences of a community (Table 2, application 17). The tour is a collection of annotated waypoints. The tour is hosted at an Internet web site. Authors can upload label-content pairs and add them to the tour. Users can download the tour to their mobile apparatuses. Authors and users can be the same or different persons. An example of such a tour can be hikers on the Appalachian Trail that record location coordinate label and personal diary content pairs and upload the pairs to the tour's web site. Visitors of the web site in turn are able to download the tour to their personal mobile apparatuses.

[0095] By way of more specific examples, FIG. 1 illustrates an embodiment of the mobile guide system where the application is a tour of a shopping center. The figure illustrates two aspects of the system, namely, a method of mapping physical world locations and objects into digitally stored object identifiers stored in a database and the use of uniform object identifiers for locations, buildings and individual objects in the same system. The tour starts with the visitor approaching the outlet center. Map 100 depicts the location and directions to center 101 which can be presented to the user as a result of reading a "label-in-the-air." The object identifier for the outlet center is derived from its location coordinates.

~~[0096] Similar information can be presented to the user as the user navigates through the coordinates within building 101 which contains upper level 102 and lower level 103. Each level contains stores. On lower level 103 there is store 104 (Store 11 in the local directory). Store 104 contains dress 105 that can be labeled with a unique barcode which the user can read to receive information about the dress. Thus, the visitor can browse this physical world equipped with a handheld mobile device 207 and the tour is a "zoom in" from large static objects to small mobile objects as the visitor makes her way from street, to building, to floor, to store, finally to the dress. The larger static objects contain the smaller mobile objects. This containment property of spaces and objects aids the system in narrowing down the location of the visitor inside the building. For large static objects such as streets and buildings the system derives an object identifier from the geographical position of the object. Once the visitor turns her attention to small mobile objects such as a dress, then the longitude and latitude of the visitor is no longer relevant. Therefore the system derives the object identifier for small mobile objects from machine readable tags, such as commercial barcodes.~~

~~[0097] To facilitate the tour, an example of the handheld device can be an Ericsson GSM telephone model R520, R320, T20, etc. with a barcode scanner attachment. In another example, the shopping center can be wired with 802.11 or Bluetooth Wireless Local Area network (WLAN) and the visitor can use a PDA with a WLAN network interface card (NIC) to communicate with the local wireless network. The system can retrieve additional information about the visitor's location ("label in the air") by tracking which wireless WLAN access point the visitor's NIC connects to and by approximating the distance of the NIC from the access point based on RF signal strength. Additional information may be generated to help to determine the NICs location by logging the movement of the NIC using timestamps and comparing the last know position of the NIC with its current approximated position.~~

~~[0098] In another specific example, illustrated in FIG. 9, the application is a guided tour of cemetery 900. Visitors walk along the road among the graves 901 and try to find graves of famous people or loved ones. The labels marking the graves trigger the playback of the content bound to that label, and the visitor with the mobile device can hear the voice of the person honored with the tomb stone, see the person's image on the display of a PDA, etc. creating a special user experience. It can be appreciated that there is an intangible benefit when~~

a place or an object (the tomb stone in this case), or a person long passed, can directly "talk" to the visitor. It can be a much more cathartic experience than a presentation by a "middle-man" such as a live tour guide.

[0099] The figure illustrates three different devices with different capabilities used to take the same tour. The three devices are: (1) cellular telephone with local GPS receiver, or network based GPS server; (2) PDA with WLAN or WWAN modem connection; and (3) PDA without network connection. In more details, the first visitor uses a cellular phone 902 equipped with a built in GPS positioning receiver 903. The phone decodes the GPS coordinates longitude/latitude and sends the coordinates through cellular base station 913 to a remote server platform 918. Server platform 918 receives the request, transforms the location coordinates into an object identifier, looks up the content associated with the object identifier, and sends back the information about nearby grave 901 to phone handset 902. Alternatively the phone does not have built in GPS receiver, and instead it retrieves its location from a remote location server. Additionally the visitor may say the name of the person on the tomb and other identifying information such as date of birth or death. The server converts speech to text and uses the text string as label to look up tour information. Depending on the capabilities of the phone, the information can be a voice response or a display of additional graphical information in a wireless browser that is running on the phone. Server platform 918 may support some or all of the following protocols: Voice/IVR/VoiceXML, HTTP, WAP Gateway, SMS messaging, I-Mode, GPRS, and other wireless data communication protocols known in the arts.

[0100] A second visitor uses a pocket PC 906 such as, for example, a Compaq iPAQ, with dual communication slots wherein slot 907 contains an RFID reader and slot 908 houses either a 802.11 WLAN Network Interface card (NIC) or a Bluetooth NIC. A nearby grave 904 has RFID tag 905 mounted on it. RFID reader 907 reads RFID tag 905, and transforms the RFID tag information to a universal object identifier. Alternatively if the PDA does not have an RFID reader, the visitor may enter the name on the grave as a label. Pocket PC 906 connects to a Wireless Local Area Network (WLAN) Access Point 914 using a WLAN NIC (Network Interface Card) 908. Wireless Access point 914 connects through local area network 915 to local content distribution server platform 916. Alternatively, the WLAN NIC can be substituted with a CDPD wireless modem card or other WAN network card that enables the PDA to connect to a cellular data network.

[0101] A third visitor uses a Handspring Visor 912 with a Springboard module

~~RFID reader 911. A nearby grave 909 has RFID tag 910 mounted on it. RFID reader~~
~~911 reads RFID tag 910 and transforms the RFID tag information to a universal object identifier. As an alternative to RFID, the visitor can enter the name on~~
~~the grave as label. Visor PDA 912 does not have a network connection. It stores~~
~~object identifiers and content locally on the device.~~
~~[0102] From~~**domains 205. Furthermore, from** the foregoing, it will be appreciated that the
described system and method bridges the world of object-based information retrieval and location-based information retrieval to thereby provide a seamless
transition between these two application domains.

[0100] In particular, the described system provides, among others, the following
advantages not found in prior systems:

[~~0103~~**0101**] (1) Using the Internet as an easily accessible vast information resource,
off-the-shelf multi-media capable portable handheld devices and ubiquitous wireless networks, the present innovation provides an open, interactive guide system. The user is an active, interactive participant of the guided tour, a creator and supplier as much as he/she is a consumer. Applications are only limited by imagination--ranging from educational toy, ~~treasure hunt in a science~~**museum tours, language**
~~center, bargain hunt in a shopping mall, touring historic cities or famous cemeteries, attending networking parties where people wear machine readable badges,~~**learning tours** etc. In all of these applications, the user, with the aid of the
present invention, is able to personalize, annotate the tour with his/her own impressions, share feedback with other users, initiate an interaction or transaction with other humans or machines.

[~~0104~~**0102**] a. The individual ~~may create his/her own object tags, and~~ label ~~the~~**objects themselves or use the existing labels on**
objects around her.

[~~0105~~**0103**] b. The author of a tour and the user of a tour (supplier and consumer)
might be the same person(s) or different person(s).

[~~0106~~**0104**] c. A "private tour" can be easily published to the Internet or to a local
community, and made "public" for other people to use, contribute, exchange or sell.

[~~0107~~**0105**] d. The tour is no longer a closed, finished product,--it can be personalized, shared, co-authored by people who have never met in person

[~~0108~~**0106**] e. Users may use their personal portable handheld devices, instead of
renting specialized proprietary devices from institutions, and download only the
software and content from the internet or local area networks.

[~~0109~~0107] f. Users and service providers have access to authoring tools to author
and publish multimedia content including streaming video and audio.

[~~0110~~0108] g. The system provides system and method, to author and publish a tour,
but the system does not restrict the content of the tour.

~~[0111] (2) Prior systems treat location based services and object labeling as two separate techniques. The current invention treats these two aspects of the physical world as labeled objects of different scales. Small mobile objects and large static objects (such as buildings a.k.a. locations) are both modeled with the same data structure, and as labeled objects. The current invention can naturally accommodate physical objects of all scales, and relationships among plurality of physical objects around us.~~

[~~0112~~0109] (~~3~~2) The system can be used both indoors and outdoors.

[~~0113~~0110] (~~4~~3) Tour content can be authored in different media types. The tour
presentation depends on the capabilities of the device (audio only, text only,
hypertext, multimedia, streaming video and audio etc) and would do appropriate
media transformations and filtering. A tour would work both with and without network access. The user can download the tour content before the tour, and store it on a portable handheld device, or access the tour content dynamically
via a wireless network.

[~~0114~~0111] (~~5~~4) The system takes advantage of both existing object tags (barcodes,
RFID, Infrared tags) and specialized tags made for a specific tour.

[~~0115~~0112] (~~6~~5) The benefit of the logical aggregation of related content into a tour
is clearly apparent, not just in the multitude of commercial applications, but
also in the multitude of personal usage scenarios, such as an audio annotated album, a chronological repository of a child's early utterances, or a tour containing a mothers' annotation of her old home and the articles she left behind bequeathed to her children. The tour serves, in these cases, as an invaluable time warp triggering recall of fond memories that enrich our lives.
It also plays the important role of immortalizing humans with a media rich snapshot of their lives.

[0113] Although the invention has been particularly shown and described with reference to several preferred embodiments thereof, it will be understood by ~~[0116] It will be appreciated by~~ those skilled in the art that various **changes in form and details may be made**
~~modifications and alternatives to the specific embodiments described could be developed in light of the overall teachings of the disclosure. Accordingly, the~~

~~particular arrangement disclosed is meant to be illustrative only and not limiting as to the~~**therein without departing from the spirit and** scope of the invention~~. Rather, the invention is to be given~~ **as defined** ~~the full breadth of~~**in** the appended claims~~ and any equivalents thereof~~.

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FAX: (312) 715-4800

April 22, 2002

Via Certified Mail
Return Receipt Requested

Rodger Tate, Esq.
Brobeck, Phleger & Harrison LLP
1333 H Street, N.W.
Suite 800
Washington, DC 20005

Re: **U.S. Patent Application Serial No. 10/035,952**
Title: SYSTEM AND METHOD FOR AUTHORING AND PROVIDING INFORMATION RELEVANT TO A PHYSICAL WORLD
Our File No.: 66566.01US2

Dear Mr. Tate:

Enclosed please find a copy of the above-referenced patent application and a copy of the Combined Declaration for the signature of Mr. Ajit Rajasekharan. Once Mr.Rajasekharan has signed the Declaration, I kindly ask that the Declaration be returned to my attention for filing with the United States Patent Office.

The subject patent application was filed on December 26, 2001 and claims priority to U.S. provisional patent application Serial No. 60/306,356. As you are aware, the provisional patent application correctly names both Rozsa Kovesdi and Ajit Rajasekharan as inventors.

It is our understanding that Mr. Rajasekharan has filed a patent application that also claims priority to this provisional patent application. It is our further understanding that Mr. Rajasekharan has represented to the United States Patent Office that he is the "sole" inventor of the subject matter recited in the claims of said patent application. However, we call your attention to the fact that Mr. Rajasekharan has admitted on several occasions that Ms. Kovesdi must be considered to be an inventor of the subject matter that is recited in the claims of the provisional patent application. For example, in a correspondence dated August 31, 2001, Mr. Rajasekharan stated:

"The system patent - the one we already filed. There is no doubt in my mind about who its inventors are - Rozi and Ajit in equal measure."

"The overall device patent - not yet filed, I am supposed to have long completed it and I have not. This is the subsidiary patent to the system patent and shares the same descriptions as the system patent - though Ajit may have a larger contribution in this patent as Rozi herself persistently claims, the evolution of ideas were a consequence of our constant combined thinking. So I would state that there was equal contribution to that too."

"In fact, even with both our contributions to the system and device patent - there have been several instances where I would say some statement which may not have a direct relevance to a claim but it would trigger the right idea in you and vice versa. Most of the claims in our system are the results of such confluences of both our ideas - to me it is a futile exercise to dissect them apart and say who contributed what."

Since you have informed us that the claims set forth in the patent application filed by Mr. Rajasekharan are identical to those found in the provisional patent application and, as such, identical to those in the subject patent application, we request that Mr. Rajasekharan either: 1) add Rozsa Kovesdi as an inventor in the patent application that he has filed; or 2) withdraw his previously filed patent application in favor of the subject patent application.

We believe that these corrective measures are required to protect the property interests of Ms. Kovesdi and Mr. Rajasekharan under the Patent Law while also providing an amicable resolution to this matter.

If you have any questions, please call me.

Very truly yours,

Gary R. Jarosik

GNM
Enclosures

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ATTORNEYS AT LAW
TRAURIG

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February 7, 2003

VIA FACSIMILE
(202) 778-2201

Rodger L. Tate, Esq.
Hunton & Williams
1900 K Street, N.W.
Washington, D.C. 20006-1109

Re: **U.S. Patent Application No. 10/035,952**
Entitled: SYSTEM AND METHOD FOR AUTHORING AND PROVIDING INFORMATION RELEVANT TO A PHYSICAL WORLD
Your Reference No.: 66566.01US2

Dear Mr. Tate:

Please be advised that we have removed ourselves as counsel from the above-referenced matter. All further correspondence and documents should be forwarded directly to Ms. Kovesdi.

Very truly yours,

Gary R. Jarosik

GRJ:dal

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(312) 715-4522
jarosikg@altheimer.com

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COPY OF PAPERS ORIGINALLY FILED

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If you have any questions, please call me.

Very truly yours,

Gary R. Jarosik

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Enclosures

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Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/035,952
Filing Date	12/26/2001
First Named Inventor	Kovesdi et al.
Group Art Unit	2876
Examiner Name	unassigned
Total Number of Pages in This Submission	9
Attorney Docket Number	66566.01US2

ENCLOSURES *(check all that apply)*

- [X] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment / Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
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- [ ] Certified Copy of Priority Document(s)
- [X] Response to Missing Parts/ Incomplete Application
  - [X] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [X] Petition
- [ ] Petition to Convert to a Provisional Application
- [X] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance Communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- [ ] Proprietary Information
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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Customer No. 25541 By: Gary R. Jarosik
Signature	
Date	May 3, 2002

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 05/03/2002

Typed or printed name	Lisa Lyle		
Signature		Date	05/03/2002

HUNTON& WILLIAMS

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FILE NO: 63044.5

September 16, 2003

VIA FACSIMILE & FEDEX

Rattan Nath
Pennie & Edmonds LLP
1155 Avenue of the Americas
New York, N.Y. 10036-2711

Re: U.S. Patent Application No. 10/035,952 ("the '952 application")
Filed: December 26, 2001
Entitled: SYSTEM AND METHOD FOR AUTHORING AND PROVIDING INFORMATION RELEVANT TO A PHYSICAL WORLD
Your Ref.: 11326-003
Our Ref.: 63044.5

Dear Mr. Nath:

We acknowledge receipt of your facsimile in the late afternoon of September 15, 2003, and your proposed response enclosed therein to the outstanding Office Action dated March 18, 2003, in the above-referenced patent application. Due to the belated nature of your attempt to provide a response in accordance with M.P.E.P. § 402.10 and the imminent deadline of September 18, 2003, we find that a reasonable amount of time does not exist for us to properly consider the response and to provide you with the necessary changes to assure that Mr. Rajasekharan's full interest in this application is preserved.

We note that our proposed response prepared on both parties' behalf was forwarded to you on May 21, 2003, shortly after you originally notified us of the outstanding Office Action. This response was provided to you at an early stage in the statutory period for responding, *i.e.*, nearly four months prior to the now looming deadline, in order to give you plenty of time to provide us with your and Ms. Kovesdi's comments. Until yesterday, we had not received any further communication from you in regard to this matter. Because yesterday's letter does nothing more than to merely acknowledge the receipt of our proposed response, it appears that Ms. Kovesdi has chosen to completely disregard Mr. Rajasekharan's timely attempt to advance the formulation of an appropriate response suitable to both parties.

As stated in the United States Patent & Trademark Office's Decision on September 17, 2002 (Paper No. 12), to assure that all interests are properly and effectively represented, all further

HUNTON& WILLIAMS

correspondence to the PTO must be signed by both a representative of Mr. Rajasekharan and a representative of Ms. Kovesdi.

We will not risk harming Mr. Rajasekharan's interest in the above-referenced application by hurriedly executing and submitting your "eleventh hour" response. If you wish to preserve Ms. Kovesdi's interest in the application, please file the amendment as originally presented in our proposed response forwarded to you on May 21, 2003.

Sincerely,

for Rodger L. Tate

RLT/TQC

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,952	12/26/2001	Rozsa Kovesdi	11326-0003-999	3522

20583 7590 12/16/2003

PENNIE AND EDMONDS
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 100362711

EXAMINER	
KOYAMA, KUMIKO C	

ART UNIT	PAPER NUMBER
2876	

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Amendment 11/6/04

REFERRED TO R. Jeffs
RECD
DEC 18 2003
Pennie & Edmonds
O.K. for filing
2322

Office Action Summary	Application No.	Applicant(s)
	10/035,952	KOVESDI ET AL.
	Examiner	Art Unit
	Kumiko C. Koyama	2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2003*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of receipt of Response filed on September 18, 2003 by the first attorney, Mr. Rattan Nath from Pennie & Edmonds LLP.

2. Acknowledgement is made of receipt of supplemental Response filed on September 22, 2003 by the first attorney, Mr. Rattan Nath from Pennie & Edmonds LLP, concerning the communication between Mr. Rattan Nath and Mr. Rodger L. Tate from Huton & Williams.

3. The reply filed on September 18, 2003 is not fully responsive to the prior Office Action because of the following omission(s) or matter(s): The Amendment filed on September 18, 2003 lacks signature from an inventor's representative Mr. Rodger L. Tate, or from Hunton & Williams. The supplemental response filed on September 22, 2003 is not considered as a signature from Mr. Rodger L. Tate because the supplemental response only shows a correspondence between the two representatives, Mr. Rattan Nath from Pennie & Edmonds LLP and Mr. Rodger L. Tate from Hunton & Williams, and does not represent a signature for the Amendment filed on September 18, 2003. Appropriate signatures from both representatives are required for consideration of Amendment. See MPEP § 402.10 and 403 as well as 37 CFR 1.33. See 37 CFR 1.111. Since the above-mentioned reply appears to be *bona fide*, applicant is given **ONE (1) MONTH or THIRTY (30) DAYS** from the mailing date of this notice, whichever is longer, within which to supply the omission or correction in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

4. The following is a courtesy copy of the previous Office Action mailed March 18, 2003.

Claim Objections

5. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 23, 24, 25...69, 70, 71 have been renumbered 22, 23, 24...68, 69, 70 respectively.

Double Patenting

6. A rejection is based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

7. Claims 1-31, 33-42 and 45-70 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim1-70 of copending Application No. 09/987597. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 18, 19, 21, 22, 31, 34, 38, 54 and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu (US 5,480,306, as cited by the Applicant).

Liu teaches a method and apparatus for providing information relevant to a physical world by reading a bar code associated with a sound data and the code is converted into a memory address pointer pointing to the initial address of the memory area in which the digital sound or pronunciation is stored and the sound applied to a loud speaker system (col 2 lines 35+). Liu teaches that the bar code is printed on visible media, such as paper and plastic slides. The conversion from the bar code to the digital code then to an address pointer is considered be normalizing a read object label associated with object into an object identifier as discussed above. And placing the object identifier into an index table repository and binding the content to the object identifier are taught in Fig 5A and Fig 5B.

Re claim 19: Liu teaches that the language learning apparatus contains a digital sound data memory means (col 6 lines 30-32).

Re claim 54: Liu teaches that the memory control means 5 may properly retrieve the desired digital speed data of the word from the memory means 6, which inherently shows that there is not pattern or sequential order for accessing, therefore it is randomly accessible.

Re claim 58: The apparatus is a purpose build device targeted to read bar code.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-5, 9, 13, 16, 29, 30, 39-42, 59, 60, 63-64 and 66-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US 5,480,306) in view of Savchenko et al (US 6,111,567).

Liu teaches a method and apparatus for reading a bar code associated with a sound data and the code is converted into a memory address pointer pointing to the initial address of the memory area in which the digital sound or pronunciation is stored, converted to an analog signal, and the sound applied to a loud speaker system (col 2 lines 35+). The apparatus 10 is considered to be a circuitry. Liu teaches that the bar code is printed on visible media, such as paper and plastic slides. Liu teaches that the apparatus having a memory and a speaker means for outputting the sound (col 6 lines 22-59).

Liu fails to teach a method for authoring information and a system for authoring the content.

Savchenko teaches methods of authoring multimedia titles (col 1 lines 8-10).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order

to create a well organized system so that minimal memory is utilized, but at the same time provide a good quality sound and maintain the flow of the music or sound produced.

Re claim 2 and 3: Liu fails to teach that the system for authoring content is resident in the apparatus.

Savchenko teaches that the execution instructions for the authoring tool are contained in the memory (col 4 lines 39-47).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order to provide a multifunctional apparatus so that the user may author and playback the sound according to his/her preference utilizing only one apparatus, which avoids complicated connections between multiple devices.

Re claim 9: Liu fails to teach that the step of storing the content in non-volatile memory resident in the apparatus.

Savchenko teaches that a computer application 42 is stored in the non-volatile memory 34 (col 4 lines 37-47).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order to safely store the content so that the content is not easily changed or modified by others.

Re claim 13: Savchenko further teaches a computer readable storage media having instructions for authoring information (col 4 lines 39-47).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order

to speed up the process by storing all the instruction in the memory and have the processor access and execute the instructions instead of loading or inputting the instructions one-by-one by the user.

Re claim 16, 29 and 30: In addition to Liu as modified by Savchenko discussed above, the conversion from the bar code to the digital code then to an address pointer is considered be normalizing a read object label associated with object into an object identifier as discussed above. And placing the object identifier into an index table repository and binding the content to the object identifier are taught in Fig 5A and Fig 5B.

Re claim 42: Liu teaches that rendering digital multimedia as a function of output capabilities of the apparatus (col 6 lines 50-58).

Liu fails to teach programming that renders digital multimedia as a function of output capabilities.

Savchenko teaches a computer application 42 that executes instructions (col 4 lines 36-45).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order to provide the proper sound signal that matches the output characteristics of the apparatus so that the user can listen to a good quality sound with less background noise and interruption.

Re claim 63: Liu teaches that a keyboard for inputting information (col 1 lines 13-25).

12. Claims 6 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 1 above and Liu as applied to claim 18, and further in

view of Cave (US 5,958,014). Liu as modified by Savchenko and Liu have been discussed above.

Liu as modified by Savchenko and Liu fail to teach that the content is a link to a live agent.

Cave teaches device having audio capabilities and can be connected to a live agent (col 1 lines 65+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cave to the teachings of Liu as modified by Savchenko in order to provide a two-way audio or text exchange to communicate with each other without remembering or dialing numbers, which also makes the process faster.

13. Claims 7, 14, 36, 37, 49 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 1 and 13 above and Liu as applied to claim 38, and further in view of Conley, Jr. et al (US 6,434,745).

Liu teaches receiving a plurality of optical codes (col 7 line 45).

Therefore, it would have been obvious to utilize the steps of Liu as modified by Savchenko and repeat steps for as many coded labels necessary because it is a mere duplication of process.

Liu as modified by Savchenko fails to teach aggregating the content into a single logical entity called a tour.

Conley teaches that a tour component of the browser 8 allows the end-user to identify one or more URLs and save them into a group called a tour and to create one or more such tours, and

to save each tour to a searchable local tour database on the end-user computer 14 similar to the searchable local image database.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Conley to the teachings of Liu as modified by Savchenko in order to organize the data so that related data are grouped in the same group. Such modification helps and speeds up the searching process when the data needs to retrieved because the data are

14. Claims 8, 15, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 1 and 13 above and Liu as applied to claim 31 above, and further in view of Brooks et al (US 4,963,719).

Liu as modified by Savchenko fails to teach detecting a second label associated with the first object and normalizing the first label and the second label such that the content bound to the first object can rendered during detection of either the first or second label in the playback mode.

Brooks teaches two labels associated with the same object, two labels attached to an object and detecting two of the labels (Fig 2, col 2 lines 26+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Brooks to the teachings of Liu as modified by Savchenko so that plurality of bar code labels having the same sound or data may be provided on different or multiple appliances for duplication or convenience purposes.

15. Claim 10, 11, 12, 20, 25, 45-47 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 1 and 64 above and over

Liu as applied to claim 18, 38 above, and further in view of Cluts (US 5,616,876). Liu as modified by Savchenko and Liu have been discussed above.

Re claim 10, 20, 45 and 65: Liu as modified by Savchenko and Liu fail to teach a step of uploading and downloading the content to a remote server.

Cluts teaches a remote server 34 utilized to transmit programming information for storage by one or more of the memory storage devices 30 (col 14-27).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cluts to the teachings of Liu as modified by Savchenko because a remote server may provide more memory or storage space, which allows more data and information to be stored.

Re claim 11 and 47: Liu as modified by Savchenko fails to teach that the step of uploading is performed via a wireless network.

Cluts teaches a communication link is wireless (col 7 lines 14-27).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cluts to the teachings of Liu as modified by Savchenko because it does not require wired connection, therefore provides mobility and convenience.

Re claim 12 and 46: Liu as modified by Savchenko fails to teach that the step of uploading is performed via a wired network.

Cluts teaches a communication link is wired (col 7 lines 14-27).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cluts to the teachings of Liu as modified by

Savchenko because the possibility of data loss or corruption in transferred data decreases, therefore the modification provides a more accurate transmission of the data.

Re claim 25: Liu fails to teach that the step of rendering the content comprises streaming the content from a remote server.

Savchenko teaches rendering the content comprise streaming the content (col 1 lines 28-31).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Savchenko to the teachings of Liu in order to transmit the sound file through communication links using industry standards, such as MPEG standards.

Liu as modified by Savchenko fails to teach a remote server.

Cluts teaches a remote server 34 utilized to transmit programming information for storage by one or more of the memory storage devices 30 (col 14-27).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cluts to the teachings of Liu as modified by Savchenko because a remote server may provide more memory or storage space, which allows more data and information to be stored.

16. Claims 17, 62 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claims 16, 59 and 64 above, and further in view of Bridgelall (US 6,264,106). Liu as modified by Savchenko have been discussed above.

Liu as modified by Savchenko fail to disclose that the instructions allow a plurality of different label types to be normalized to one object identifier.

Bridgelall teaches a combination bar code scanner/RFID circuit for reading bar code or RFID (col 2 lines 20+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Bridgelall to the teachings of Liu as modified by Savchenko because bar code and RFID tags are commonly known forms of identification and combining those two functions into one device will provide the flexibility of reading different types of codes.

17. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 18 above, and further in view of Fan et al (US 6,324,165). Liu has been discussed above.

Liu fails to teach determining the current time and comparing the current time to the timestamp before rendering the content.

Fan teaches a timer issuing a current time and a comparator for comparing the queue timestamp to the current time (col 27 lines 7-12).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Fan to the teachings of Liu in order to provide a data that corresponds to the current time by checking to see if the current time and timestamp corresponds to each other.

18. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 18 above, and further in view of Boulton et al (US 5,566,291). Liu has been discussed above.

Liu further teaches that the language learning apparatus contains a digital sound data memory means (col 6 lines 30-32).

Liu fails to teach that the steps of accepting annotations/feedback after the rendering of the content and binding the annotations/feedback to the object identifier.

Boulton teaches an object identifier field 200 that stores an object identifier which references an object the user may be referencing with his or her feedback information. In Boulton's feedback system, objects can be used to further define the context when the feedback is provided (col 25 lines 55+).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Boulton to the teachings of Liu in order to enhance the content and provide a better quality sound, image, etc. to the user by editing or making additional comments to the content.

19. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Boulton as applied to claim 26 above, and further in view of Cluts.

Liu as modified by Boulton fails to disclose the step of storing the annotations/feeback in a remote memory.

Cluts teaches a remote server 34 utilized to transmit programming information for storage by one or more of the memory storage devices 30 (col 14-27).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cluts to the teachings of Liu as modified by Boulton because a remote server may provide more memory or storage space, which allows more data and information to be stored.

20. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 31 above, and further in view of Swartz et al (US 6,095,418). Liu has been discussed above.

Liu fails to teach that at least one of the plurality of labels is custom created.

Swartz teaches translating the MIDI code to a symbol data and to music print data. The printer 26 then prints the symbol data as symbol 14.

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Swartz to the teachings of Liu in order to provide custom created bar code so that information regarding the content's location within the database or other information may be encoded according to the program or application that is used for the system.

21. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 38 above, and further in view of Hollander (US 4,037,302) and Blum (US 4,654,727). Liu as modified by Savchenko have been discussed above.

Liu as modified by Savchenko fail to teach that the physical world comprises labeled locations containing labeled mobile objects and the labeled locations are used to determine proximity of the labeled mobile objects.

Holland teaches labled locations, such as lobeled bin or labled shelf (col 4 lines 48-51).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Holland to the teachings of Liu as modified by Savchenko in order to identify the purpose, use or the physical description of the location of the labeled location so that the locations can easily and quickly identified.

Blum teaches that a bar code label on the cassette is read by a bar code reader in order to enable a computer control system to determine the location of the cassette and control the subsequent transport of cassettes to the tape transports (col 1 lines 40-45).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Blum to the teachings of Liu as modified by Savchenko in order to quickly and easily determine the location of the object by using the bar code label as a tracking method, which also avoids the object from getting lost.

22. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko and Cluts as applied to claim 47 above, and further in view of Aguirre et al (US 6,195,531). Liu/Savchenko/Cluts have been discussed above.

Liu/Savchenko/Cluts fails to teach that the wireless network comprises a cellular telephone network.

Aguirre teaches a cellular telephone network (col 3 lines 26-40).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Aguirre to the teachings of Liu/Savchenko/Cluts because it is a widely used wireless network method for providing a safe and reliable data transmission, which enhances the accuracy of the data being transmitted.

23. Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 38 above, and further in view of Cole et al (US 6,359,711). Liu have been discussed above.

Liu fails to disclose that the apparatus accesses the tour via the internet and a voice portal.

Cole teaches a portable computer with access methods of voicemail and internet (col 2 lines 10-15).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cole to the teachings of Liu because it is a fast method to communicate and transmit data using a conventional phone line, which is commonly available.

24. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 38 above, and further in view of Aguirre and Cole.

Liu fails to teach that the apparatus accesses the tour via a cellular telephone voice mailbox.

Aguirre teaches a cellular telephone network (col 3 lines 26-40).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Aguirre to the teachings of Liu/Savchenko/Cluts because it is a widely used wireless network method for providing a safe and reliable data transmission, which enhances the accuracy of the data being transmitted.

Cole teaches a portable computer with access methods of voicemail and internet (col 2 lines 10-15).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Cole to the teachings of Liu because it is a fast method to communicate and transmit data using a conventional phone line, which is commonly available.

25. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 38 above, and further in view of Krueger (US 5,598,540). Liu has been discussed above.

Liu fails to teach that the digital multimedia is accessible by the apparatus in a sequential order.

Krueger teaches accessing the stored data only in sequential order (Abstract).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Krueger to the teachings of Liu in case presentation of the digital multimedia must be in a certain order for the user to understand certain topics before achieving the next data so that the next data makes more sense to the user.

26. Claims 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as applied to claim 38 above, and further in view of Ramachandran (US 6,315,195). Liu has been discussed above.

Liu fails to teach that the apparatus comprises a personal digital assistant and a cellular telephone.

Ramachandran teaches a portable terminal 14 that reads bar codes and also may be integrated into a carrier 62, which may be a personal digital assistant or a cellular phone (col 8 lines 23-26, col 9 lines 35-42).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Ramachandran to the teachings of Liu because both personal digital assistant and cellular phones have the capability of storing information and also wirelessly transmitting information through internet and other communication methods, which enhances the voice data and play back as well.

27. Claims 61 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 59 and 64 above, and further in view of Chen et al (US 5,869,820). Liu as modified by Savchenko have been discussed above.

Liu as modified by Savchenko fails to teach that the circuitry comprises an IR tag reader.

Chen teaches an infrared tag reader (col 8 line 5).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Chen to the teachings of Liu as modified by Savchenko because IR tags are readily available tags that are also used for identification purposes and it utilizes wireless communication, which provides mobility and faster process.

28. Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu as modified by Savchenko as applied to claim 64 above, and further in view of Bertram et al (US 5,613,137). Liu as modified by Savchenko have been discussed above.

Liu as modified by Savchenko fails to teach a circuitry determining a coordinate location.

Bertram teaches a coordinate determining circuitry 302 configured to determine corresponding locations of the touch on the coordinate sensor (col 15 lines 20-28).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of Bertram to the teachings of Liu as modified by Savchenko in order to determine the location of the touch pad sensor input that provides the information regarding the identification of the content to be retrieved and played back.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Savchenko et al., U.S. Patent No. 6,343,298, discloses a seamless multimedia branching.

Kikuda, U.S. Patent No 4,952,785, discloses a bar code generating apparatus for image communication terminal device.

Raistrick et al., U.S. Patent No. 5,971,279, discloses a hand held scanner for the visualiy impaired.

Citron et al., U.S. Patent No. 5,288,976, discloses a bar code use in information, transactional and other system and service applications.

Kunizawa et al., U.S. Patent No. 4,964,167, discloses an apparatus for generating synthesized voice from text.

Knowles discloses a hand-held portable www access terminal with visual display panel an gui-based www browser program integrated with bar code symbol reader in a hand-supportable housing.

Hoda et al., U.S. Patent No. 4,831,610, discloses method and apparatus for interactive control of a data recording medium playback apparatus using bar code access.

Barton et al., U.S. Patent No. 5,998,752, discloses a sorting system.

Dyko et al, U.S. Patent No. 5,956,708, discloses an integration of link generation cross-author user navigation, and reuse identification in authoring process.

Wilz, Sr. et al., U.S Patent No. 5,992,752, discloses an internet-based system for enabling information-related transactions over the internet using java-enabled internet terminals provided with reading java-applet encoded bar code symbols.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kumiko C. Koyama whose telephone number is 703-305-5425. The examiner can normally be reached on Monday-Friday 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Kumiko C. Koyama
Kumiko C. Koyama
December 03, 2003

DIANE I. LEE
PRIMARY EXAMINER

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

JONES DAY
222 EAST 41ST ST
NEW YORK NY 10017

11326-003-999

In re Application of :
Kovesdi and Rajasekharan :
Application No. 10/035,952 : DECISION DISMISSING PETITION
Filed: 26 December, 2001 :
Attorney Docket No. 66566.01US2 :

6/16/04.

This is a decision on the petition filed on 19 April, 2004, which is treated as a renewed petition under 37 CFR 1.182.

The petition is **DISMISSED**.

On 26 December, 2001, the above-identified application was filed. Papers filed on 23 August, 2002, in response to the Decision Under 37 CFR 1.47(a) and 1.182 mailed on 16 August, 2002, included a Declaration signed by the previously non-signing inventor, Rajasekharan, in compliance with 37 CFR 1.63.

A petition under 37 CFR 1.182 requesting that all correspondence be required to be signed by representatives of both joint inventors was filed on 23 August, 2002, and was granted on 17 September, 2002.

In the present renewed petition, petitioner Kovesdi argues that petitioner Rajasekharan has refused to sign a response to the outstanding Office action. Petitioner Kovesdi requests that the requirement that all correspondence be signed by representatives of both joint inventors be withdrawn so that Kovesdi may, by herself, file a response to the Office action. Petitioners also request that the petition under 37 CFR 1.47(a) be granted Petitioners' arguments have been carefully considered, but are not persuasive that the relief can or should, be granted.

At the outset, it is noted that the petition under 37 CFR 1.47(a) originally filed on 13 May, 2002, was dismissed as moot on 17 September, 2002, because both joint inventors have signed the declaration in compliance with 37 CFR 1.63. As such, Rule 47 status is not applicable to the present application.

Petitioners' argument that Rule 47 status should be granted because Rajasekharan, after signing the declaration, refuses to cooperate in signing correspondence in the Office misinterprets the purpose of Rule 47.

With regard to the request that the requirement that correspondence be signed by representatives of both inventors be revoked, petitioners' argument has been considered, but is not persuasive. When a petition under 37 CFR 1.182 requiring the signature of representatives of more than one applicant on all correspondence is granted, petitioners assume the risk that not all of the applicants may cooperate in signing correspondence. To grant this petition would essentially render the grant of such a petition under 37 CFR 1.182 of no effect, as petitioner could by such means file Office correspondence upon behalf of the recalcitrant inventor, to the prejudice of that inventor's rights. It is noted that the general policy of the USPTO is that the owner of less than the entire interest of a given application will not be permitted to unilaterally control prosecution unless and until it is clearly shown that the rights of that party are being prejudiced by the action(s) or inaction(s) of the party(s) that constitute(s) the remaining interest. Nevertheless the mission of the USPTO is to accept and examine applications for patent that ultimately promote the progress of science and the useful arts, and a party constituting less than the entire interest who nevertheless seeks to bring an invention before the public will not, ultimately be thwarted in that endeavor.

Petitioner Kovesdi may wish to consider filing a continuation or divisional application covering only the matter invented by her, naming herself as the sole inventor. In doing so, petitioner Kovesdi may prosecute the application without the necessity of obtaining the cooperation of Rajasekharan. Should petitioner wish to prosecute claims to the jointly invented subject matter as well, then petitioner may wish to consider filing a continuing application and again seek relief under 37 CFR 1.47 if Rajasekharan does not execute the declaration. If however Rajasekharan does join in that application and again displays the recalcitrance herein complained of in failing to assisting in the prosecution of that application containing the joint claims, petitioner may re-present the instant petition under 37 CFR 1.182 and then seek the requested relief.

With regard to petitioner's request for suspension of action, 37 CFR 1.103(a) provides that:

> On request of the applicant, the Office may grant a suspension of action by the Office ... for good and sufficient cause. The Office will not suspend action if a reply by the applicant to an Office action is outstanding. Any petition for suspension of action ... must specify a period of suspension not exceeding six months. Any petition for suspension of action ... must also include: (1) A showing of good and sufficient cause for suspension of action; and (2) the fee set forth in §1.17(h), unless such cause is the fault of the Office.

The above-identified application was filed on 26 December, 2001. On 16 December, 2003, the Office mailed applicant a non-final Office action. This action set a three-month shortened statutory period for reply, to 17 March, 2004, with requests for extensions of time under 37 CFR 1.136(a) permitted. A proper reply has yet to be received.

The petition must be dismissed as improper. Action cannot be suspended in an application awaiting a reply by the applicant.

Further, applicant is specifically advised that the original three-month period for reply has expired, but that period may be extended by a request for such accompanied by the appropriate fee for extension of time, and the reply itself. The time for submitting a proper reply cannot be extended **beyond 16 June, 2004** (with payment of a three-month extension of time fee). **Failure to timely file a proper reply (including the appropriate extension of time fee) will result in the abandonment of the application.**

Based on the foregoing, the petition is **dismissed**.

Counsel's deposit account, No. 50-3013, will be charged a fee of $130.00 for consideration of the present petition.

Further correspondence may be addressed to the following:

By mail: Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX: (703) 872-9306
Attn: Office of Petitions

By hand: U.S. Patent and Trademark Office
2011 South Clark Place
Customer Window
Crystal Plaza 2, Lobby, Room 1B03
Arlington, VA 22202

OR[1]

U.S. Patent and Trademark Office
220 20th Street S.
Customer Window, Mail Stop Petition
Crystal Plaza 2, Lobby, Room 1B03
Arlington, VA 22202

Telephone inquiries related to this decision should be directed to the undersigned at 703-308-6918.

DIWood

Douglas I. Wood
Senior Petitions Attorney
Office of Petitions

[1] Effective 5 June, 2004, street addresses for several of the buildings of the United States Patent and Trademark Office (USPTO), including the Crystal Plaza Two building which is the location of the Customer Window, have been changed. This change is made because the street on which the Crystal Plaza Two building is located will be redesignated from South Clark Place to 20th Street S.